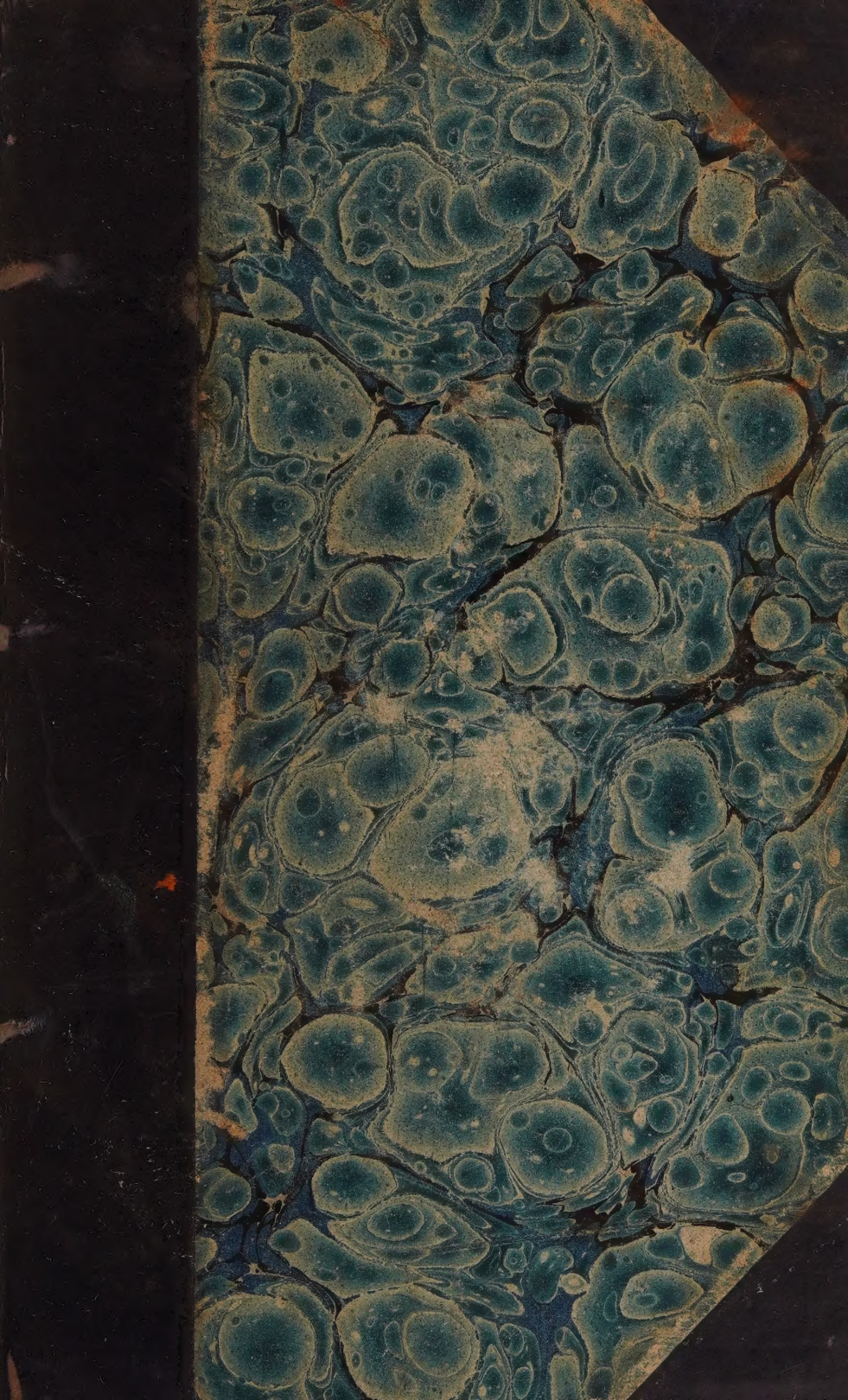

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44. Några anmärkningar om Bråckinklämning och Bråckoperationer, af Doctor Karl Rossander, Andre Öfver Kirurg vid Seraphimer Lazarettet, Chirurgiæ Adjunct vid Carolinska Institutet. Stockholm: P. A. Norstedt och Söner, 1861. 8vo. pp. 109.

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BELGIUM.

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52. Vierteljahrschrift für die praktische Heilkunde, herausgegeben volder medicinischen Facultät in Prag. Published Quarterly. Prague: Karn André. (Received regularly.)

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ii. Third Annual Report of the General Board of Commissioners in Lunacy for Scotland. Blue Book. Presented to both Houses of Parliament, by Command of Her Majesty.

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v. An Inquiry into a Frequent Cause of Insanity in Young Men. By Robert P. Ritchie, M.D., Edin., L.R.C.S.E.

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5. Pharmaceutical Journal and Transactions. Published Monthly. London. (Received regularly.)

6. The Lancet. A Journal of British and Foreign Medicine, Physiology, Surgery, Chemistry, Criticism, Literature, and News. Edited by Thomas Wakley, Surgeon. Published Weekly. London. (Received regularly.)

7. Medical Times and Gazette. Published Weekly. London: John Churchill. (Received regularly.)

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AUGUST 1, 1861.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Observations upon the Treatment of Deformities resulting from severe Burns.* By JOHN K. BARTON, M. B. T. C. D., F. R. C. S. I., Surgeon to the Adelaide Hospital; and University Lecturer on Practical Anatomy.

A CASE of severe burn involves, from the first moment, so many dangers to the patient, and calls for so much care and forethought upon the part of the surgeon, that the accident is rightly considered a most important one, and we find the subject has received the careful attention of the most celebrated surgeons. Should the patient have passed safely through the several stages, in each of which his life is threatened with danger from a different quarter, the prospect of deformity still remains, which often takes place in spite of every effort made to prevent it, and afterwards baffles every attempt to remove it, rendering the unhappy sufferers a burden to themselves and to others. These results of severe burns did not escape the attention of Dupuytren, who recounts cases of almost every conceivable kind of deformity thus produced which he had himself seen; and he further recommends for their treatment, when the cicatrix had fully contracted, an operation consisting of several parallel incisions through the cicatrix, and subsequently

an apparatus to be applied, which, by means of springs, would keep up a constant separation of the edges of the wounds until they had been healed. Mr. James, of Exeter, recommended a somewhat different proceeding: he made an incision upon each side of the cicatrix, and then one across it, and dissected the two flaps thus formed from the parts beneath, afterwards keeping the parts separate by an apparatus, a description and figure of which, I believe, has been published by him, but I have not been able to find it. Earle and Sir B. Brodie followed a similar line of proceeding.

By these means many cases have been more or less successfully treated. But in many others, especially when the neck and face were the parts engaged, they have disappointed the expectations of both surgeon and patient,—the cicatrices being found to contract again in spite of every means taken to prevent them; and the deformity, which immediately after the operation had disappeared, returning as badly as before. Consequently, in addition to James' simple operation, it was proposed to fill up the wound with a flap of healthy skin, taken from a suitable situation, and thus to prevent the possibility of recontraction. It has been found, however, that in a case where the cicatrix is large and the deformity very bad (the very cases which most call for relief), this plastic operation is quite inadmissible, inasmuch as the wound is so large, that a flap large enough to fill it up would invariably slough, which circumstance would render the case worse than if no attempt of the kind had been made. In consequence of the repeated failures of these means, surgeons very generally refuse to interfere in bad cases, especially when the contraction is in the neck, and the patients are consequently condemned to endure their deformity.

The causes of these unfavourable results from operations well planned and skilfully performed, will be found, I think, to arise from too much being expected from the operation, and too little attention being bestowed upon the subsequent process of extension or stretching; and that much more successful results will follow than have been hitherto obtained, by means of a careful and continued extension of the cicatrix, in some cases assisted by a cutting operation, such as has been mentioned,—in others, simply by subcutaneous section of the unyielding bands, and frequently not requiring any assistance from the knife whatever.

A consideration of the cause of these deformities favours this view of the treatment. The cause of the forcible contraction of the cicatrix which produces the deformity is the lymph

which is shed in the repair of the ulcers left after the separation of the sloughs, which, following an invariable law, as soon as it becomes a part of the organized tissue, slowly but forcibly contracts. This law we may observe in many parts of the body; for instance, when the lymph is shed over the pleura, we find the walls of the thorax yielding to its contraction; and when poured out in the capsule of Glisson, we know with what a powerful grasp it compresses the liver. And in stricture of the urethra, it is the same substance which, shed upon or beneath the mucous membrane, produces such a train of evils by its tendency to close the canal; and tries the patience and skill of the surgeon, in overcoming its constant tendency to contract. Now, the treatment of stricture of the urethra has, for more than 200 years, occupied the attention of surgeons both in this country and on the Continent; and while there has been great diversity of opinion upon many points, I believe I am correct in saying that all the ablest surgeons who have written on the subject agree that, in the great majority of cases, dilatation alone is the safest and the most successful treatment that can be adopted[a]; that in some the use of the knife may be required to obtain a passage, in the first instance, which then must be maintained by dilatation; and that the cases which admit an instrument at all, and will not yield to dilatation, are comparatively very few;—that, in fact, a cutting operation is only occasionally required, while careful and patient dilatation is almost invariably sufficient, either in conjunction with operation or alone, to produce a successful issue. Now, the cause of the contraction in each case being identical, we may with great advantage use the experience which we have gained in the treatment of stricture of the urethra to guide us in the choice of means for overcoming the contraction of the cicatrices of burns, especially when cutting operations have so been freely tried; and when unassisted, or only partially assisted by extension, have failed to produce the desired result.

Whatever mode of treatment we adopt, our great object must be to obtain, if possible, the absorption of the lymph, which is the contracting power: if this be removed, the case is cured. Now, no cutting operation will, of itself, produce this desirable object; on the contrary, it will cause the effusion of more lymph, which, being quite recent, will no doubt be

[a] The following is the first "conclusion" arrived at in Mr. Thompson's well-known Essay on Stricture:—"That the process of dilatation, carefully and perseveringly employed, is the most safe, efficient, and generally applicable of all means for the treatment of organic and permanent stricture."—Pathology and Treatment of Stricture of the Urethra. By Henry Thompson, F. R. C. S. Page 314.

far more amenable to extension than the old cartilaginous lymph; and so cutting may help. But the means which we must trust to, to gain the removal of the cicatrized tissue, is *extension;* and this, in some cases alone, in others aided by the knife, will, when perseveringly employed, produce the absorption of the tissues of the cicatrix, and so the permanent removal of the deformities dependent upon it.

That the plan of extension which I am advocating is carried out with success in the Orthopedic Hospital, and elsewhere in London, would appear from the following passage, which is taken from "The Lancet" of August 13, 1859. I have not been able to find any more complete account of the treatment adopted there, nor any report of cases since this:—

"*Simple extension in Contraction from Burns.*—We lately had the opportunity of observing the treatment of a case of deformity, arising from an old burn, in a little boy, nine years of age, under Mr. Coote's care at St. Bartholomew's Hospital. It is a plan, I believe, in use in the Orthopedic Hospital, and consists in the proper application of simple extension perseveringly carried out. The boy was admitted on the 7th of April, with his lips and mouth drawn downwards from a burn in the neck when an infant. The cicatrix preserved the usual characters of hardness and thickening. By suitable appliances, the head and chin were kept extended, with the effect of bringing back the lower lip and jaw to their natural position, and getting rid of the extreme deformity which had before existed. The mouth can now be closed. The effect of extension is to cause the absorption of the adventitious membraneous material present in the cicatrix, and thus permit the latter not only to become soft and extended, but permanently to remain so."

In the following case, it will be seen, I first performed James' operation, and then employed extension, aided by subcutaneous section. From the experience gained in the treatment of this case, I would now *begin* with extension, carry it on perseveringly for some time; then, if I found it necessary, employ subcutaneous section of the most resisting bands of the cicatrix, and finally resort to the more severe operation, if I found I could not succeed without it.

Case I.—Isabella M'Owen, a healthy girl, fourteen years of age, from the County Meath, was admitted into the Adelaide Hospital, upon the 22nd of March, 1860. When about eight years of age, her clothes having caught fire, she was severely burnt about the right side of the neck and head. Her mother had endeavoured to prevent the contraction which she was

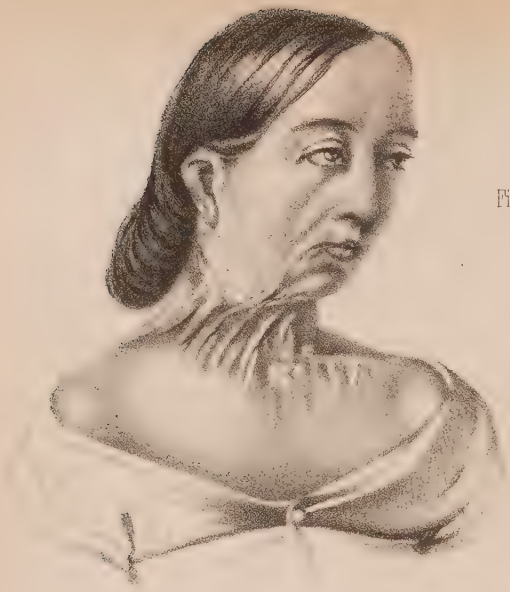


Fig. 1.

Fig. 2.

& Co Lith. Dublin.

told would follow, by placing a stiff leather collar round her neck when the ulcers were healing, and for some time afterwards; the contraction, however, went on increasing in spite of this, and, as the girl began to grow up, she became very much dissatisfied with her appearance, and urgently sought that something might be done for her relief. Her state upon admission is shown in the lithograph (Plate I., Fig. 1), taken from an excellent drawing by Connolly. The cicatrix, as will be seen, occupied the whole of the right side of the neck, its densest and thickest part being close beneath the ramus of the jaw, extending from the lower part of the ear, which was involved in it, to the chin; from this central mass strong fibrous bands extended downwards below the clavicle, and as far forwards as the sternum; superiorly, the skin of the whole of that side of the face was drawn down to it; the angle of the mouth, and the external angle of the eye, being drawn downwards, the latter causing slight ectropium. The head was kept bent down to the right side, and when held straight caused increased distortion of the countenance; but by no effort could the patient turn her head to the left side.

The girl and her parents being very anxious to have something done to relieve her deformity, I determined to attempt it,—my colleagues having examined the case, and agreed with me, and having also had the advantage of Dr. Hutton's advice, who kindly gave me his opinion as to the best mode of proceeding.

Upon the morning of the 28th, as soon as the patient was well under the influence of chloroform, I proceeded to operate in the following manner:—An incision was first made along the posterior edge of the cicatrix, from the mastoid process to the acromion, then a second along the anterior or inner edge, from the chin to the sternum; thirdly, another incision was carried across the cicatrix just below its central mass, connecting the two former. The two flaps thus formed were then carefully dissected from their attachments to the parts beneath, which was a matter requiring both time and care, as the skin, platisma, and fascia were all matted together and to the muscles beneath, by the dense fibrous structure of the cicatrix. As soon as this had been satisfactorily accomplished, the deformity of the face was found to have disappeared, and a gaping wound remained, extending from the ramus of the jaw to the clavicle. No vessel required ligature. Lint wet in cold water was laid on the wound, and the patient removed to bed. Considerable constitutional irritation succeeded, which, being followed by an attack of bronchitis, reduced the patient very much, and

prevented me applying any instrument for keeping her head in proper position for some time. I found some difficulty, also, in getting any instrument made which would fulfil the indication, viz., to keep the head in such a position that the cicatrization of the neck could not deform the face; at last I succeeded in getting an instrument made by Read, which has answered so well, that I have had it figured (Plate II. Fig. 1), as, with modifications, I think it will be found applicable to all cases of contraction about the neck or face. It consists of a shoulder-piece (A, B) which, before the steel of which it is made was hardened, was fitted over the shoulder so as to sit closely and firmly; this was fixed in its place by two straps passing round the chest; from its upper side projected two steel slips, moving upon two others (X, X), which connected it with a firm cushion (C), which fitted against the ramus of the lower jaw, and was fixed firmly there by two straps, as seen in the figure. When the shoulder-piece and cushion were firmly strapped in their places, the head was forcibly drawn over to the left side, thus putting the parts between the jaw and the clavicle very much on the stretch; the two pairs of steel slips sliding upon one another; the screws (S) being then turned, the apparatus was fixed, and remained so the whole day: it was taken off at night, and reapplied, carefully, every morning. Recontraction was very rapidly taking place when this instrument was first applied; the bands of lymph in the cicatrix were extremely strong and unyielding, and the face was again being drawn into deformity; so that, from the first, the work this extending apparatus had to accomplish was to stretch the cicatrix, and thus cause its absorption. It became a matter of great interest to me to see if it could perform this; it was therefore carefully put on every day, for about three months. When about one month had elapsed, I saw some progress was slowly, but steadily, being made, to aid the process going on, I now divided, subcutaneously, two or three of the most resisting bands: this was decidedly of service, so I repeated this about every fortnight, until at the end of three months the thickness of the cicatrix was very much decreased; it was evident that the dense fibrous tissue was being removed, and that the steady extension, aided by the subcutaneous section of the bands, was producing an absorption of the lymph of the cicatrix; a corresponding improvement had taken place in the deformity of the face; the eye was quite free, while the corner of the mouth was very slightly pulled down; the head, too, could be turned to the left side with freedom, and the face turned round to the left side completely; but when this latter motion was performed, the

mouth and cheek were still a good deal dragged. The patient now went to the country,—her mother having learned in the hospital, in a day or two, how to put on the instrument, and undertaking to apply it daily, and bring back the girl in November, which she did, having been absent about two months. Her neck remained very much in the same state when she returned as that in which it was when she left the hospital, but her general health was much improved. No doubt the apparatus was not kept on as regularly, nor applied as firmly, as it should have been; upon her re-admission, however, it was again carefully put on, the most prominent bands in the cicatrix being again divided with the tenotomy knife, and a progressive improvement took place; the skin being soft and pliant, where it had been hard and puckered, the deformity of the face disappearing at the same time. All this, however, took place very gradually. She was still under treatment in March, 1861, when, on account of the death of a sister in the country, she suddenly left the hospital. Her parents did not wish anything further to be done, expressing themselves very much pleased with the improvement which had taken place, as a proof of which they again sent her up to town, at my request, to have a photograph taken, which has been lithographed in Plate I., Fig. 2, showing her present state.

In this case, as in most others of a similar kind, the extending apparatus was put on at first with the object of keeping the edges of the wound separated while cicatrization went on; but very soon I found it would have to accomplish much more than this: if I was to obtain a favourable result, it would have to produce the absorption, to a great extent, of the old lymph of the burn, and the new lymph of the wound, which together were rapidly reproducing the deformity. This it accomplished after being steadily and perseveringly employed for six months, aided, during a part of this time, by a subcutaneous division of the most resisting bands.

In proceeding to treat any case of this kind by extension, it will be necessary to have an instrument which will fulfil the indication, viz., to keep the cicatrix constantly and firmly extended. The difficulty of accomplishing this, particularly when the neck or face are the parts to be operated upon, is one cause why so little has been accomplished by this means. The instrument I used in this case I found to answer very well; it is very simple, and, when properly put on, it remained *in situ* without slipping, and kept up very powerful extension on the cicatrix for twelve hours daily. In putting it on, care must be taken that the lower piece is firmly fixed to the shoulder by the

straps attached to it, and also that the cushion is firmly fixed against the face by the straps going round the head, before extension is made; by attending to this, an intelligent servant, or relative of the patient, will readily learn to fix it on daily. After a few days, in the case I have related, it gave the patient but little annoyance, habit and the hope of a cure quickly reconciling her to its use. Plate II., Fig. 1, shows it fixed in its proper position, and the mode of its action. An instrument made upon the same principle,—viz., a lower piece resting upon some part where it can be firmly fixed, connected to an upper movable cushion by slips sliding on one another, and fixed by screws,—can be readily adapted for each particular case.

An objection which may be fairly urged against the treatment by simple extension, is the length of time it takes to produce the desired result. Now, in a case where the thickness and extent of the cicatrix is great, no doubt it will be a very tedious process; in such cases I would recommend the adoption of subcutaneous section of the most resisting bands of the cicatrix; I found it a valuable auxiliary in the cases I have related. I generally divided two or three of the most resisting bands at one time; in some cases the skin over the dense tissues divided, being very thin, and involved in it, either gave way or were cut through; but in no case was there any constitutional disturbance, and only a few drops of blood were lost each time, while undoubtedly the extension was very much facilitated by it.

While the majority of cases will be most successfully treated, I believe, by simple, persevering extension, aided, when the cicatrix is situated in the neck, by subcutaneous section, yet there are some cases, where the cicatrix is very large, and the mass of organized lymph very great, which will not yield to these means,—just as there are some cases of stricture of the urethra which will not yield to dilatation, but demand, on account of their dense cartilaginous character, some other measures. In such cases, after having given a fair trial to simple extension, I would then operate, and as soon as possible put on the extension-apparatus again. As to the mode of operating, the proceeding adopted in M'Owen's case, first recommended by James, will frequently answer very well; or a V-shaped incision may be made both above and below the cicatrix, *through the healthy skin, close to the cicatrix, but not through it*, which may then be dissected from its attachment sufficiently to admit of extension to the desired extent: this plan I have seen successfully practised by my colleague, Dr. Walsh.

Besides those cases of extensive and cartilaginous cicatrices which we must seek to modify by an operation before we can

Fig. 1.

Fig. 2.

ster & Co lith Dublin.

successfully employ extension, there is another set of cases which will be advantageously treated by a cutting operation in the first instance; these are cases where a web has been allowed to form between adjacent parts, such as between the fingers or toes, or between the arm and side, by which the motions of the parts are crippled, if not destroyed. In such cases we can remove by the knife a great part of the contractile tissue, and yet, as the parts will allow of being drawn together without any deformity resulting, leave a very small surface for granulation, and by subsequent extension we can prevent the re-formation of the web. The following case, which is still under observation, exemplifies well this kind of cicatrix, and the mode of its removal.

Case II.—Mary Kelly, ten years of age, a healthy-looking little girl, was brought up to the Adelaide Hospital, from the neighbourhood of Navan, upon the 13th of last April, for the purpose of having something done to restore, if possible, the motions of her right arm, which was connected to her side by a very strong cicatrix, which rendered the limb almost useless. Her mother stated that when the child was only four years of age, her clothes caught fire, and she was very severely burnt along her right side and arm. She was attended by a doctor; but, after he had ceased to visit her, the child remained quite unable to move her arm from her side, on account of the pain which any motion of the limb gave her; the sores remained open for nearly a year; as they were gradually healing, she observed that the arm was contracted to the side, and could scarcely be moved. Soon after this she brought the child to Dublin, to see what could be done for her. She saw Dr. M'Dowel at the Whitworth Hospital, and was advised by him to return to the country for another year, at the end of which time, if she brought back the child, he would be able to do something for her relief; in the mean time the arm was to be exercised as much as possible. No doubt Dr. M'Dowel remembered the advice given by Dupuytren, not to operate upon the cicatrices of burns until they had fully contracted. Various circumstances occurred to prevent her bringing up the child at the time named, and she allowed five years to elapse, until, being urged by her friends to have something done, she came to the Adelaide Hospital.

The drawing (Plate II., Fig. 2), lithographed from a photograph taken at the time of the child's admission, shows very well her state at this time. The cicatrix was both very extensive and thick; it completely filled up the axilla, extending two inches

below the bend of the elbow on the outside, and as far as the last rib on the inside; it was as thick as the fore-finger, and very dense. The motions of the arm were, as may be supposed, greatly interfered with: in the first place, it could not be separated from the side for more than six inches, measured from the elbow to the chest; the backward and forward motions were very much limited; and the fore-arm could not be straightened on the arm. The muscles of the arm and fore-arm were very much atrophied, but the bones had attained the same size as the opposite limb. The artery retained its normal position.

I determined in this case, before applying extension, to perform a cutting operation, for the following reasons:—1st. The density and unyielding character of the cicatrix made it doubtful whether it would yield to extension alone, and certain that it would be a very long and tedious process: 2nd. The peculiar position of the cicatrix made it quite possible to remove a great portion of the contractile tissue altogether, leaving at the same time only a small surface to heal by granulation.

Accordingly, upon the 20th of April, the child being under the influence of chloroform, I proceeded in the following manner:—An incision was first made along the outside of the cicatrix and inside of the arm, extending from the top of the axilla to about three inches below the elbow-joint; the knife was then turned round, and carried from the last-named point along the free edge of the cicatrix to the side of the thorax, when a third incision along the inside of the cicatrix was made from the point where the first began to where the second terminated; thus a triangular piece was included, which was the whole anterior surface of the cicatrix—this was now rapidly dissected from the posterior part, and removed; the posterior layer of the cicatrix was then divided perpendicularly from above downwards, its external part brought over the arm, and its internal over the chest, and the edges then drawn together by seven or eight points of twisted suture, and well supported by broad strips of adhesive plaster, wet lint was laid over all, and the child removed to bed. Some of the needles were removed upon the third day; two were allowed to remain, where there was much strain, for two days more. When these were withdrawn, the lips of the wound retracted to some extent, so that the surface to be healed by granulation was, upon the side of the chest, two inches in width, and six in length; upon the arm it extended from the axilla to three inches below the elbow, but was not more than an inch and a half broad anywhere. At the apex of the axilla there remained, however, a surface fully

four inches across for granulation; the extent of this surface rendered the secondary treatment of keeping the parts extended while granulating very important.

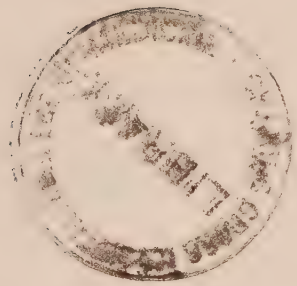
The apparatus I employed for this purpose consisted of two parts—1st, a simple elbow-splint, which, being fixed to the arm and fore-arm when bent, could be straightened and kept at any angle by a screw; by means of this, in a day or two, the fore-arm was brought into a straight line with the arm, and kept so during the rest of the treatment: 2nd, to keep the arm from the side, and thus prevent the re-forming of a cicatrix between the parts, I adopted the following plan: a broad well-padded girdle was strapped round the child's waist, resting against the pelvis, from which, directly below the axilla, and united to it by a hinge-joint, extended a steel rod, about two feet and a half in length, curved so that a rest for the arm could, as the arm was raised from the side, easily slide along it; by means of a screw, the rest could be fixed at any part of the rod, and thus the elevation of the arm easily regulated and maintained at any point. I found this instrument work remarkably well; the only change it became necessary to make in it was to have the handle of the screw, which fixed the position of the rest on the rod, filed off, and a key made to turn it, which being in the custody of the dresser who had charge of the case, put it out of the power of the little patient or the nurse to let down the arm after it was fixed. As soon as the needles were removed, this instrument was put on, and the arm held at right angles to the chest, and the fore-arm in a straight line with the arm. Both night and day the instrument was kept on, causing the patient no annoyance after being carefully fixed in the morning. As soon as granulation had fairly set in, I found it necessary to raise the arm higher than a right angle from the side, so strong was the contracting power, and also to repress the granulations in the axilla, which had a tendency to grow down rapidly, by the frequent application of nitrate of silver, and by tightly strapping the shoulder with plaster. This tendency of the granulating surface to extend downward, while at the same time contracting so as to draw the arm to the side, explained what, when I first saw the case, seemed very hard to comprehend,—how such a dense mass of tissue could have been formed between the arm and the chest. The connecting tissue grew from above downwards, uniting, as it extended, the granulating surface upon the chest to that upon the arm. This case is still under treatment (June 28); and although it is more than two months since the operation, a great part of the granulating surface is yet unhealed. This excessive slowness arises

from the position in which the arm is necessarily maintained, which position will I believe have to be maintained more or less for the next three months, before the danger of recontraction will be over. The motions of both elbow and shoulder are now nearly entirely regained, passive motion being employed daily.

This was, without doubt, a case in which much was gained by commencing with a cutting operation; yet the struggle only began with this, which was the easiest part of the treatment; and the final result—the restoration of the motions of the right arm—depends more upon the less brilliant subsequent treatment.

All cases of deformity produced by extensive cicatrices are serious cases; and the surgeon will do well to bear in mind, when undertaking their treatment, the obstinately contractile character of the morbid tissue against which he is about to proceed; that to obtain the removal of this tissue must be the object of his treatment; that in no case can this be obtained by a cutting operation alone; that extension, if patiently and perseveringly employed, will cause the absorption of this tissue; and that, therefore, how this can be efficiently employed in any particular case, must first occupy his attention. Then he may consider in what way this process may be facilitated; and here the knife will furnish him with the aid he requires—thus considered as an aid to extension, there will be no disappointment to surgeon or patient at the result of the operation. And when performed after and during efficient extension, it will be far more successful than it is found to be when performed first, and as the principal part of the treatment.

In these observations I have scarcely alluded to the plastic operation, because it is unsuited to the kind of cases I have been considering, viz. extensive and deep cicatrices. In cases where a flap of healthy skin could be obtained, and where the cicatrix was so small that there would be no likelihood of sloughing of the transplanted piece, such as a narrow cicatrix of the cheek, causing ectropium, I would prefer this mode of proceeding to any other, and have seen it very successfully adopted.



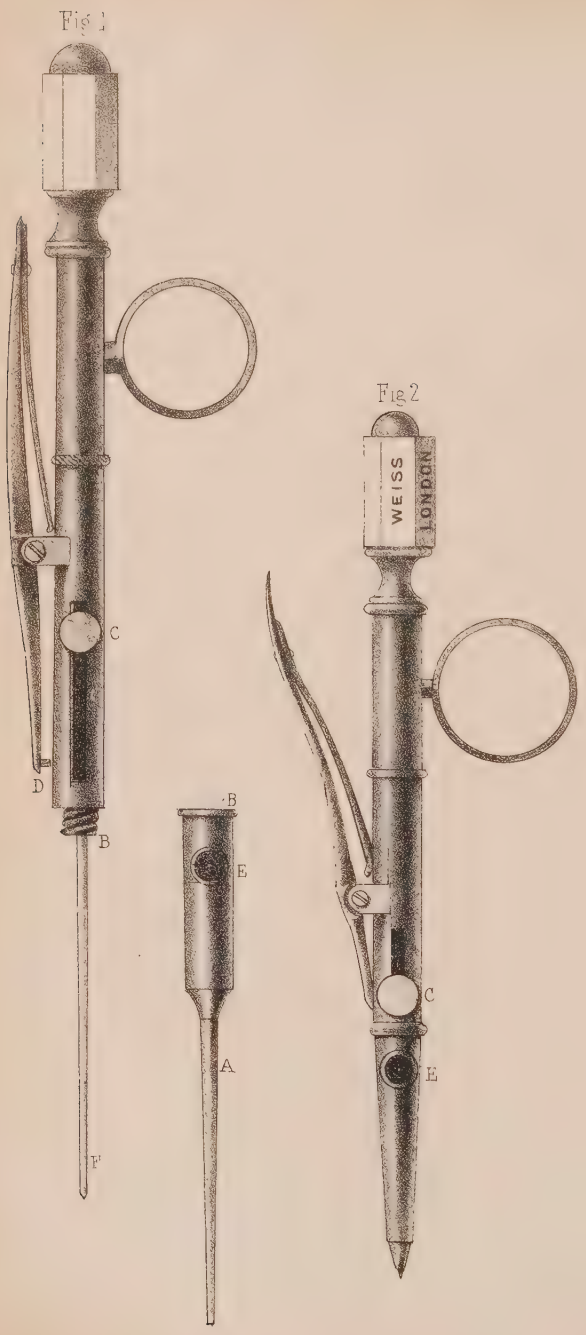


Fig 1
C
D
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Fig 2
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Art. II.—*Description of an Instrument for the Subcutaneous Introduction of Fluids in Affections of the Nerves.* By F. Rynd, Surgeon to the Meath Hospital, &c.

The canula[a] (A) screws on the instrument at (B); and when the button (C), which is connected to the needle (F), and acted on by a spring, is pushed up (as in Fig 2), the small catch (D) retains it in its place. The point of the needle then projects a little beyond the canula (Fig. 2). The fluid to be applied is now to be introduced into the canula through the hole (E), either from a common writing-pen or the spoon-shaped extremity of a silver director; a small puncture through the skin is to be made with a lancet, or the point of the instrument itself is to be pressed through the skin, and on to the depth required; light pressure now made on the handle raises the catch (D), the needle is released, and springs backwards, leaving the canula empty, and allowing the fluid to descend. If the instrument be slowly withdrawn, the parts it passes through, as well as the point to which it has been directed, receive the contained fluid; and still more may be introduced, if deemed expedient.

The subcutaneous introduction of fluids, for the relief of neuralgia, was first practised in this country by me, in the Meath Hospital, in the month of May, 1844. The cases were published in the "Dublin Medical Press" of March 12, 1845. Since then, I have treated very many cases, and used many kinds of fluids and solutions,with variable success. The fluid I have found most beneficial is a solution of morphia in creasote, ten grains of the former to one drachm of the latter; six drops of this solution contain one grain of morphia, and a grain or two, or more, may be introduced in cases of sciatica at one operation, with the very best effects, particularly if they are of long standing; or even in cases of tic in the head and face, with equally beneficial results. The small instrument is for operations on superficial nerves, the larger one for deep-seated nerves; for though it is not necessary to introduce the fluid to the nerve itself to ease pain, still the nearer to the seat of the pain it is conveyed, the more surely relief is given. They were manufactured, and completed entirely to my satisfaction, by the celebrated surgical instrument-maker, Mr. Weiss, of London, and are faithfully represented in the accompanying lithograph, by Foster & Co., of this city.

[a] Plate III.

Art. III.—*Case of Poisoning by Aconite.* By Lombe Atthill, M. D., Fellow of the King and Queen's College of Physicians; Ex-Assistant Physician, Rotunda Lying-in Hospital.

The details of the following case of poisoing by aconite may, perhaps, be deemed of some interest, there being but few well-authenticated instances on record, those in which recovery took place being still fewer. The accuracy of the details may be relied upon, as I made notes from time to time by the patient's bed-side.

On Friday, the 4th May, 1861, I ordered the following liniment for a gentlemen who was suffering from a painful affection of the hip-joint:—soap liniment, two ounces; tincture of aconite, three drachms. At the same time I prescribed a mixture, of which he was to take one table-spoonful for a dose. He was a weakly, delicate man, and had for several years been subject to fits of epilepsy. On the following morning, having rubbed in the liniment as directed, he proceeded to take the mixture; but, having placed the two bottles together, instead of doing so, he inadvertently poured out and swallowed a table-spoonful of the liniment, which must have contained 48 minims of the tincture of the Pharmacopœia. This was at 10 minutes to 8 o'clock, A. M. He immediately perceived his mistake, and as quickly as possible sent for me; but though no time was lost, I did not reach him till about 20 minutes to 10 o'clock, for he resided in the country. I found him dressed, sitting on a chair in his bed-room, and supporting his head on a table, with a basin before him. He was sickish, having retched frequently, without discharging the contents of the stomach. He had drunk a good deal of warm water, and to this and the soap liniment he had swallowed we may attribute the inclination to vomit.

His appearance did not indicate anything very unusual. He told me that he had been walking up and down the room till within ten minutes of my arrival, when he was compelled to sit down, feeling himself prostrated and entirely overcome by the effects of the poison. He complained of extreme languor, and a great sense of oppression and weight, with inclination to yawn; but his most distressing symptom was a feeling of dry heat and tightness of the skin over the whole body, accompanied by the sensation of numbness and tingling. This, he stated, commenced in his feet, within a very few minutes of his having swallowed the poison, and spread quickly upwards. There was not at this time any dilatation of the pupils, but they seemed to act sluggishly, nor had he any unpleasant feel-

ing about the throat or mouth. His pulse was very feeble, and faltered rather than intermitted; but, within ten minutes of my arrival, it began to intermit in a most marked manner; and the intermissions were more frequent and prolonged, until the pulse ceased to be felt altogether at the wrist.

The moment I had made a few hurried inquiries, I administered the only emetic at hand, namely, mustard. How much I gave I hardly know, for I shook it into a cup, and mixed it as quickly as possible. Immediately on his taking this, I got him into bed, and placed a hot jar to his feet, which were very cold. Shortly after I administered more mustard, the first dose having failed to act as an emetic. After this he began to retch again, but only brought up mouthfuls of frothy mucus, tinged with the mustard. It was now half-past 10 o'clock (two hours and three-quarters had elapsed since he swallowed the poison), and his condition, which had become rapidly worse, was as follows:—

The whole surface of the body was cold, especially the hands and arms; the feet, however, were kept warm by the jar. He lay on his back, with his shoulders elevated and supported by pillows; his face was livid; the eyes were closed, and, except when roused by attempts at retching, or when spoken to, he seemed to be indifferent to all that passed around him; he did not, however, wander in the least, was perfectly conscious, and expressed himself clearly on several subjects I spoke to him of. The pupil of the eye was very slightly dilated; the pulse could not be felt at the wrist, and even in the temporal artery only with difficulty. The heart's action was feeble, irregular, and intermitting, and was momentarily becoming more and more affected. On examining with the stethoscope, its sounds were distinctly audible, and even preternaturally clear, but its impulse was almost wanting. When asked how he felt, he complained only of the great weight of his head, and the numbness of his legs. I should have mentioned that, shortly after he had taken the second dose of mustard, I had commenced the administration of such stimulants as I could procure, namely, brandy and strong coffee; for I was nearly three miles from any apothecary's shop, and could obtain no others. I had also already applied two mustard sinapisms, one over the heart, and the other to the epigastrium; but, although he complained of the pain they occasioned, they did not seem to produce any beneficial effect; so I now determined to apply one to the nape of the neck. I have already mentioned that this gentleman was subject to fits of epilepsy, for the relief of which he had for several months kept open a

small blister, by means of D'Albespeyrre's plaster, on the back of his neck. Over this the mustard had to be applied; and, although I did not remove the dressing, it almost immediately caused great pain, and stimulated him in a marked degree; so much so, that the pulse was again perceptible at the wrist, though it soon failed again.

At this juncture my friend, Dr. White, of Roundtown, arrived, as I had summoned him to assist me in this distressing and anxious case. He brought with him some aromatic spirits of ammonia, of which we immediately administered half a drachm in brandy and water. Soon after swallowing this he vomited freely, and appeared to be somewhat relieved by doing so, but quickly relapsed into his former condition; and now, for the first time, he complained of drowsiness. Hitherto there had been no symptom of spasm or convulsion; but, at about 11 o'clock, he had a very slight convulsive fit, which, however, passed off almost instantaneously. After it he vomited freely, expectorated large quantities of ropy mucus; the pulse also returned for a moment or two to the wrist. At 15 minutes past 11 o'clock he had a second fit, more severe and better marked than the former, and, though short, it was very decided in its character. During its continuance the head and thorax were slightly drawn back; the hands and arms were flexed; the eyes remained open, and the pupils were considerably dilated; respiration, also, was much impeded; and he must have been unconscious, for, on rallying, he said he had been asleep. His vision, too, seemed impaired, although he saw distinctly when roused. He now complained greatly of a dreadful feeling of numbness all over the surface of the body, more especially on the hands, face, and calves of the legs, with a sensation of tightness of the skin of the face, and tingling of the lips; but there was no distress of any kind experienced in the mouth or throat. There was great restlessness and jactitation.

Again there was another interval, marked as before, first, by a transient rallying of the powers of life, followed by still greater depression. This interval we employed in administering stimulants, and in efforts to keep up the circulation by friction over the thorax and on the extremities. We also applied sinapisms to the calves of the legs and to the back. Among other things, we gave strong green tea, as there was a decided tendency to sleep. About this time the bowels were moved —not, however, involuntarily, for he expressed an inclination to evacuate them, so he was directed to pass it in a sheet under him; and he was in the act of doing so, when he was

seized, at 20 minutes before 12 o'clock, with a third fit, this time marked by symptoms of the most alarming character. The hands were clenched; the arms bent, and drawn forcibly backwards; the muscles of the back became very rigid and arched, so as to bear a marked resemblance to the spasm of tetanus; differing from it, however, in that there was no remission of the spasm until the fit entirely passed off. The pupils were greatly dilated; the face was livid; and there were marked symptoms of congestion. Respiration seemed suspended, and at one time I thought him dead. But, by the greatest exertions on our part, by keeping up artificial respiration on the plan recommended by Sylvester, by frictions, and by every means we could devise, we had the gratification of seeing animation return, and the symptoms of congestion pass off. He now quickly rallied, consciousness almost instantly returned, and he said he felt better. The body became warmer, and the pulse was distinct at the wrist. The sickness of the stomach, too, which had ceased after the first slight fit, recommenced, and he vomited freely. This improved condition was, however, of but short duration. We, of course, did not relax our efforts; but, nevertheless, all the bad symptoms returned, and at half past 12 o'clock a fourth fit, if possible more alarming than the last, came on. It was not, perhaps, so intense, as far as spasm was concerned, as the former, but of much greater duration. It lasted twenty minutes, and the struggle which went on between life and death was most painful to witness. I need not recapitulate the symptoms, and shall merely mention that the pupils were, if possible, more widely dilated than before; and the congestion so great at the close of the fit, that Dr. White suggested bleeding from the temporal artery as a last resource; when, just as he was preparing to do so, the symptoms of congestion suddenly passed off, and were followed by such extreme depression, that it deterred us. He drew a deep inspiration, and gradually rallied. This fit seemed to mark the crisis of his case, for his condition now became of an entirely altered character; the stage of depression had gone by, as had also that of convulsive spasm, if I may use such an expression; but now extreme restlessness was the most prominent feature. He turned from side to side, tossed his arms wildly about, and never was at rest for a moment. We had to place pillows along the head of the bed, to save him from injuring himself, so violently did he throw back his arms; his muscular power was not in the least impaired, and he grasped the hand placed in his so violently as to cause pain. The pulse was now good; the body warmer. He vomited again, and, as

before, expectorated quantities of ropy mucus. Altogether his condition was improved. He complained incessantly of the dreadful feeling of numbness in the calves of the legs, and also in his face and hands. Friction over these parts seemed to afford great relief, and he would not allow it to be discontinued even for a moment. He was drowsy, and occasionally muttered incoherently, but he was perfectly conscious when spoken to.

During the next three hours we watched him with the greatest anxiety; for, though now hopeful of a favourable termination, the necessity for exertion had not ceased; the pulse frequently became very feeble, but, by the exhibition of stimulants and constant friction, his strength was kept up. At 5 o'clock a gentle perspiration appeared over the body, which was followed by a diminution of the distressing numbness. At about 5 o'clock he passed urine freely, not a drop having been previously voided, even though the bowels had moved. Shortly after this he took a little beef-tea, and seemed to enjoy it; and, at 10 o'clock, we left him for the night. He was then quite free from pain, though he still complained of the uncomfortable feel in the calves of his legs, and the lightness of his head; the former he lost in less than two days, but the latter did not entirely disappear for sixteen days.

We found him on the following morning in the most favourable state. He had slept tolerably well, and had some perspiration. The tongue was quite clean, pulse quiet; and, in fact, except that he felt weak, and as if recovering from a long illness, he was in his usual health. I had feared that the violent remedies employed—the quantity of mustard, brandy, and ammonia swallowed—might have been followed by symptoms of gastric irritation, but nothing of the kind occurred, and on Monday he was able to walk about his garden. I saw him last week, and he assured me that he had not for some time felt so well.

The treatment adopted was necessarily simple; for, being five miles from town, we had no choice of remedies. There was no stomach-pump at hand; and even had there been, as nearly two hours elapsed before I saw him, it is doubtful whether much benefit would have resulted from its use. The treatment consisted of, at first, the free exhibition of mustard, then of hot brandy and water and strong coffee, given in small quantities every few minutes, though these were rejected as fast as swallowed. After Dr. White arrived, we gave half-drachm doses of the aromatic spirit of ammonia frequently, also brandy and water, as before; and, later in the day, when he became drowsy, strong

green tea. Externally, mustard sinapisms were applied to the epigastrium, cardiac region, nape of neck, and calves of the legs, in succession. Friction was kept up for hours over the thorax, arms, hands, and legs, both with the hand and flesh-brush. During the two severe fits, when respiration was suspended, artificial respiration was kept up by Sylvester's method for some minutes, and with marked success.

I cannot conclude without bearing testimony to the prompt and efficient aid afforded me by my friend, Dr. White.

Art. IV.—*Procidentia Uteri from Perineal Laceration of many Years' Standing. Operation; perfect Cure.* By D. Lloyd Roberts, M. D., on the Medical Staff of St. Mary's Hospital for Diseases of Women and Children, Manchester; and Honorary Local Secretary of the Obstetrical Society of London, &c., &c.

Jane W——, aged 49, married at 20; admitted an in-patient of St. Mary's Hospital, on November 24, 1860: she has had eight children, all born alive at the full period of utero-gestation. The menstrual crisis commenced at 13, without any derangement of health—was always scanty and light coloured, and accompanied by severe dysmenorrhœa. She has always been subject to a yellow leucorrhœal discharge since her marriage. The perineum was lacerated in her third labour, now many years ago; and she attributes the falling of her womb to this circumstance.

Present Condition.—The uterus is completely procident, and hanging between the thighs; the inverted mucous membrane of the vagina, which now covers the womb, has assumed almost entirely the character of integument; there are two patches of deep-seated ulceration on the sides of the anterior surface, which are ragged and unhealthy, and encroach on the lips, which are enormously hypertrophied, very vascular, excoriated, and in a state of intense inflammation. The surface of the os and cervix is cracked in two or three places, and a free discharge of blood oozes from the fissured surfaces. The uterus can be returned, though with difficulty, and any attempt to reduce it causes extreme pain.

In consequence of the weight of the uterus, the bladder is pulled down in front of it, and the meatus directed upwards. There is great irritation of the bladder, evinced by frequent desire to void the urine, which is high-coloured and ammoniacal; the perineum is lacerated, the greater portion of the

sphincter ani being included in the rent; and, when the bowels are acted upon unduly, as when under the influence of medicine, she loses all control over the passage of the fæces; the orifice of the anus is much dilated and relaxed, and its mucous membrane everted; upon the latter are three small piles. She also complains of dragging pain over the lumbar vertebræ, which is increased on pressure, and extends also down the front of the thighs. There is symptomatic fever, furred tongue, quick pulse, &c.; she is unable either to walk, sit, or stand, and frequently complains that "life is a burden to her." These distressing circumstances, in addition to the miseries arising from poverty, induced me to recommend her to become an in-patient of St. Mary's Hospital.

The treatment, after admission, consisted in the application of soothing lotions to the uterus, so long as inflammatory action remained; grey oxide of mercury, suspended in glycerine, to the ulcers; tonics, as quinia and iron, hydrargyri bichloridum cum cinchona, to reduce the hypertrophied uterus. This treatment was persevered in for seven weeks, at the end of which time the ulcers had healed, and all inflammatory action had ceased. I now turned my attention to the replacing and retaining the uterus in its natural position. I proposed to effect this by the restoration of the perineum, and contracting the caliber of the vagina, by removing slips of mucous membrane from the latter.

Accordingly, on January 5, 1861, I proceeded to perform the operation, chloroform being administered by my friend, Mr. Runcarn. The steps of the operation were as follows:—The patient having been placed in the position for lithotomy, I passed a needle, armed with a double ligature, through a portion of the mucous membrane on the lower part of the uterus, for the purpose of making traction upon it to facilitate manipulation; I dissected off a triangular slip of the mucous membrane covering the posterior surface of the uterus; brought the edges of the wound together by silver wire; removed a similar piece from the anterior surface, and drew the edges together in the same manner; I now pared the margin of the perineum for half an inch in thickness and two and a half inches in length, brought the edges together by passing two silver hare-lip pins through the whole substance of the perineum, from without to within, and from within to without, after the manner recommended by Mr. Spencer Wells for bringing together the abdominal parietes after ovariotomy. The operation occupied one hour and a half. The wound was dressed and secured by a perineal bandage, and the patient put to bed. She had a good sleep, and awoke refreshed at 4 o'clock, P.M.

The progress of the case was very favourable, and quite free from bad symptoms. On the eighth day the hare-lip pins were removed, and I was gratified to find that perfect union had taken place along the whole of the united edges, with the exception only of a very inconsiderable portion. This afterwards left the appearance of a small aperture in the perineum. The ligatures of silver-wire on the anterior and posterior surface of the uterus came away at the end of the third week.

The patient was kept for some time rigidly in the recumbent position, to secure strength and permanence of the union of the parts; and was finally discharged on April 20, 1861.

Remarks.—I attribute the successful termination of this case to the following circumstances:—

1st. To the strict maintenance of the recumbent posture, both before and after the operation, and also to the therapeutic influence of the hydrargyri bichloridum in reducing the hypertrophied condition of the uterus. I learned the use of this remedy from an excellent paper by Dr. Oldham, in the sixth volume of Guy's Hospital Reports, and have verified its efficacy in a great number of cases which have occurred under my care at St. Mary's Hospital.

2ndly. To the removal of a *sufficient quantity* of the mucous membrane from the vagina to secure its more perfect contraction. Some previous operations of mine have had only partial success, from want of this precaution.

3rdly. To the use of silver hare-lip pins, instead of the ordinary quilled suture: the advantages are, greater facility in use, and a firmer and more secure apposition of the parts.

Art. V.—*Case of Arrested Development of the Female Genital Organs.* With Observations. By Francis Richard Cruise, M. D. T. C. D., L. K. & Q. C. P. I., M. R. C. S. E., Lecturer on Surgical Anatomy in the Carmichael School of Medicine, Dublin.

[Thesis for the Degree of Doctor of Medicine, Trinity College, Dublin.]

It is sufficiently obvious that, in the investigation of any branch of natural science to which we may devote ourselves, much benefit is derived from varying our methods of elucidating and testing truth. At one time we may gain abundant fruit from the simple observation of phenomena as they pass before us; at another we must by experiments vary their order, and, isolating portions of complicated processes, gain for ourselves opportunities of simplifying the objects of research. In aiding the investigator of animal physiology, there is certainly no

more instructive operator than *nature in disease.* There is no necessity to quote here instances of the light which pathology has thrown upon normal anatomy and physiology; they are familiarized to us all by every day's experience. Hence I will pass forthwith to the subject of my present communication, which, if I judge aright, may be viewed as one of these happy instances. The case I am about to recount and analyse is one of *arrested development of the uterus, and absence of the vagina.* We need only turn to our special treatises on those organs to see that such a malformation, although decidedly rare, is by no means unheard of. But in the present instance it is worthy of special attention, because it confirms and bears out, as I think can be clearly shown, the observations made by several physiologists relative to the mode of development of the generative system in the fœtus; and, in so doing, demonstrates how such deformities, so far from being mere freaks of nature, are, no less than her more perfect organizations, obedient to definite and immutable laws.

In the month of March last, preparatory to lecturing upon the anatomy and physiology of the female genitals, I removed the organs, *en masse*, from the body of a girl named Eliza Carroll, aged sixteen years. She had died of measles, with severe thoracic complication, in the Hardwicke Fever Hospital, in one of Dr. Corrigan's wards; and I acknowledge here with gratitude the kind liberality with which he placed entirely at my disposal the preparation of this remarkable deformity. I may remark at the outset that there was nothing in the appearance of the body calculated to lead me to suspect the strange deficiency which existed; on the contrary, its general outline was decidedly womanly:—the pelvis broad; the mammæ developed in proportion to the age; the hair long; the face devoid of any trace of beard; the voice, moreover, I am informed, attracted no particular attention during life; the external organs of generation presented so little peculiarity, that I did not examine them, even superficially, before removal. I wish to lay particular stress upon this circumstance, that the *female characteristics* were decidedly marked, because later I shall make particular allusion to it. On proceeding to dissect the specimen for lecture I found, on separating the labia externa, the clitoris well developed; the nymphæ, vestibule, and orifice of the urethra, natural; but, on seeking for the opening of the vagina, I discovered that it was closed. Suspecting a thickened and imperforate hymen, I reversed the specimen, purposing to dissect from behind, seek out the uterus, and so trace the vagina. I now ascertained that the peritoneum, in place

of being thrown into a double cul de sac, as we find in the normal female pelvis, formed but a single pouch, passing directly from the front of the rectum to the posterior surface of the neck of the bladder, and that the uterus was absent. Resolved to seek for whatever typical rudiment of it might exist, I cautiously dissected up the peritoneum lining the recto-vesical cul de sac, and, holding it up to the light, found the only representative of the uterus to be a thickening of that membrane at the point of convergence of two firm cords (see Fig. 1). Tracing these cords outwards, I found that they expanded, becoming bulbous, and without difficulty recognized in them the Fallopian tubes in a rudimentary condition. On making a section of one of them, I failed to discover therein a true pervious canal. The outer extremity of each, in place of being open and fimbriated, was closed and, as I mentioned, bulbous. No round ligament passed off from the undeveloped uterus; but, on seeking for the ovaries, I discovered that they were present, and fully developed. Of the vagina no trace existed, unless indeed we regard as such two vascular plexuses, one at each side of the closed vaginal orifice, which, in the normal condition of the parts, assist in forming the vascular tunic of the lower portion of the vagina, and which Kobelt has named the *bulbi vestibuli*.

Fig. 1 represents the peritoneum lining the recto-vesical

Fig. 1.

pouch, seen while held against the light, exhibiting the convergence of the rudimentary Fallopian tubes, typical of the uterus.

Fig. 2, is a sketch of the deformed organs seen from within; —with the aid of the annexed references it is hoped the malformation will be rendered clear.

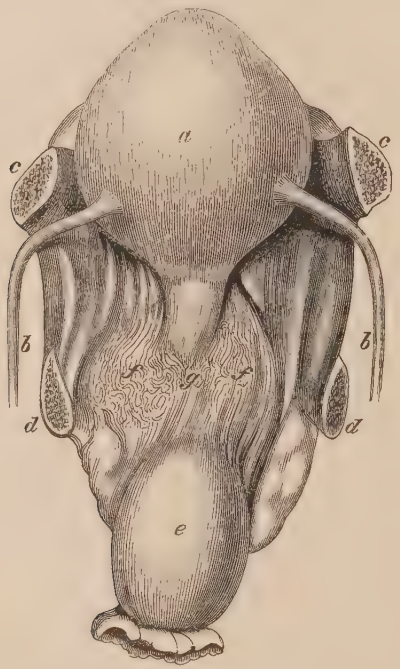

Fig. 2[a].

To sum up the condition of the parts as found, I may state that:—

The external organs were perfect, excepting the closure of the vaginal orifice. The internal organs were disposed as follows:—The ovaries present, and fully developed; the Fallopian tubes present, but in a rudimentary condition; the uterus represented by the coalescence of these organs; the round ligaments of the uterus absent; the vagina absent.

Having stated the case as it presented itself, I will now venture to offer a few remarks explanatory of the physiological views which I conceive explain, *to a certain extent*, the strange condition of the parts under consideration. I would not be

[a] *a*, bladder; *bb*, ureters; *cc*, sections of pubes; *dd*, sections of ischia; *e*, rectum; *f f*, vascular plexuses lying at each side of *g*, which is the posterior surface of the dense structure occupying the situation of the vaginal orifice.

understood to promise an explanation of the phenomena in the proper acceptation of the term. I question much that physiology ever has compassed, or ever will compass, a complete explanation of any of the wonders we behold around us; but it enables us, at least, to gratify a philosophic desire to reduce as much as possible to general laws and ordinations facts apparently unconnected, and to prove method and system amid circumstances which at first sight appear totally at random.

On turning to the investigation of *embryonic development* we find that, before thirty days of intra-uterine life have elapsed, and while as yet the sex of the fœtus is wholly undeterminable, along each side of the rudimentary vertebral column, masses of a yellowish-brown colour become discernible. These bodies are named, after their discoverer, the *Corpora Wolffiana*. They are situated in front of the kidneys and suprarenal capsules, and are destined to wither away as these increase, although they do not in either sex totally disappear, as Müller supposed. On the front of each is situated a small white mass: this latter is destined to become the ovary or testis, as the case may be. It consists of a portion of blastema *completely independent* of the Wolffian body; and although easily seen from about the sixth or seventh week of fœtal life, at that time gives no reliable indication of its ultimate destiny as ovary or testicle. At this period it has been appropriately termed by Kobelt the *generative gland*. At first its direction is somewhat vertical; but if the fœtus prove to be female, as time advances it rapidly becomes more and more oblique, and at the third month has approximated to the horizontal position which we find it to occupy at birth. So much for the origin of the ovary. On examining the Wolffian bodies (Fig. 3) we find each to consist of a series of horizontal tubes (*a*) placed one above the other, having their vertebral ends closed or cœcal, and their outer extremities opening into a canal (*b*) common to them all. This canal is the excretory duct of the Wolffian body, and opens inferiorly into the uro-genital sinus (*c*); external to this duct a second tube may be observed (*d*), which commences above by a blind pouch, and opens inferiorly into the uro-genital sinus by an orifice distinct from that of the duct of the Wolffian body. This tube has been named the duct of Müller, in honour of its

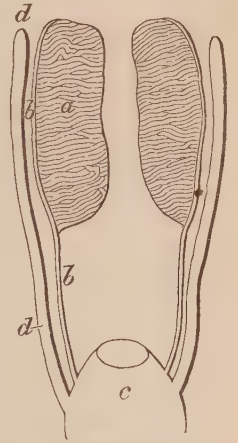

Fig. 3.

discoverer. He erroneously supposed that it existed only in the female, whereas Kobelt has discerned it in the male, in which latter sex, however, it never reaches high development. It is important to bear in mind, that at the earliest period this structure is solid; and it is only as evolution advances, that it becomes tubular.

Such, then, as I have described, up to the sixth or seventh week of intra-uterine existence, is the condition of the organs which are destined to produce the generative systems in the male and female. If we continue our observations, we find that a series of changes (varying according to the sex to which the fœtus will ultimately belong) come upon the several elements of these organs, gradually altering them from their primary state of sexual indistinction, and finally bringing them to perfection. This identity of origin of parts which in their perfection are so unlike, prepares us to find in one the homologues of the other,—an investigation which has been most elaborately and perfectly carried out by Kobelt[a].

It would occupy too much time were I to enter minutely into the details of those wonderful and interesting processes of advance and retrogression in the several parts of the Wolffian bodies in the male and female embryo respectively. Therefore I will merely state, in brief, that in the female the duct of Müller alters its direction, and becomes horizontal; near to its outer extremity it opens into a bell-shaped mouth, and thus constitutes the Fallopian tube or oviduct. These tubes dilate somewhat internally also; and those of opposite sides coalescing form the uterus, which at first presents a bipartite outline,—a condition permanent in many of the lower animals. These cornua or horns of the uterus are the portions formed earliest, and their formation is assisted by the lower end of the true excretory duct of the Wolffian body, which is the only portion of this tube that does not suffer obliteration in the female. A word now about the origin of the round ligament of the uterus, and we shall be in a position to apply our physiological data to deciphering the malformation before us. I have detailed the manner in which the duct of Müller becomes converted into the Fallopian tube, and how its inner extremity forms the cornu of the uterus on each side. In so doing it is assisted by the lower extremity of the excretory duct of the

[a] See an admirable article by Dr. Arthur Farre on the Uterus and its Appendages, in the supplementary volume of Todd's Cyclopædia of Anatomy and Physiology. See also De l'appareil du Sens Genital des deux Sexes au point de Vue Anatomique et Physiologique, par le Docteur Kobelt. Traduit de l'Allemand par le Docteur H. Kaula.

Wolffian body, which opens close by it. What then becomes of the remainder of the excretory duct? In the male it becomes convoluted above, assists in forming the epidydimis, and remains uncoiled below to constitute the vas deferens; at the junction of the two portions it gives off a flattened band which, in due time, taking a direction towards the inguinal channel finally becomes the gubernaculum testis. In the female the tube remains free from convolutions throughout; its upper part withers; its lower segment assists the inner extremity of the duct of Müller in forming the cornu of the uterus, and hereabouts gives off a band which, like that in the male, assuming a direction towards the groin, eventually becomes the ligamentum teres uteri, the true homotype of the gubernaculum testis. Fig. 4 is intended to represent the changes which the Wolffian bodies undergo in the female embryo by the end of the third month after conception.

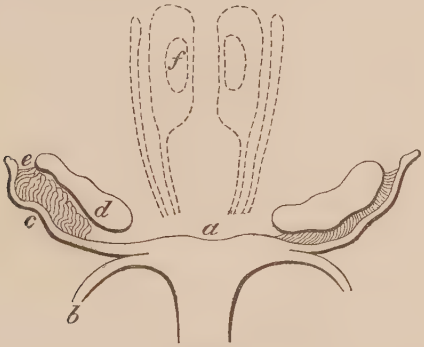

Fig. 4.

Above they are drawn in dotted lines, with the generative glands *in situ*, all represented in the position which they at first occupy; the dark tracings show the organs which they develope in the process of transformation, namely, the uterus (*a*); the round ligament (*b*); the Fallopian tube (*c*); the ovary (*d*); and the remains of the Wolffian body (*e*), called the parovarium, or organ of Rosenmüller.

Bearing in mind the order of evolution of the female genitals, which I have briefly described, and then proceeding to examine the malformation under consideration, we shall find, I think, that the case in point and the laws of growth of these parts observed by physiologists tally in a remarkable manner, and mutually throw light upon each other.

In the first place, I conceive that the arrest of development

affected the Wolffian body, and especially its proper duct. That the duct of Müller was present, but imperfect, we may fairly judge, because a rudimentary Fallopian tube is present; but it never reached full maturity; its tract, I believe, is impervious for any distance; its outer end is closed and bulbous, and presents no appearance of the natural fimbriated opening; its inner extremity reached no higher point of development than to join its fellow, and produce, as a representative of the uterus, a slight thickening in the serous membrane lining the recto-vesical pouch. A still heavier blight, I suspect, fell upon the excretory duct of the Wolffian body; for, as we have seen, in the normal state it gives origin to the round ligament of the uterus, which is wholly unrepresented in the present case. The absent vagina in this instance is not difficult to comprehend. The junction of the excretory ducts of the generative system corresponds in the male to the vesicula prostatica, or Weberian organ; in the female, as we have seen, to the uterus. From the latter the vagina springs. The non-developed uterus prepares us for the absence of the vagina.

How comes it then, it may be asked, that coincident with such wants in essential parts of the genital apparatus, nevertheless the ovary is present and fully grown? I think we are prepared to understand this apparent incongruity. As I have already explained, the ovary takes its origin in a portion of blastema *wholly independent* of the Wolffian body, and therefore suffered nought in the stricken condition of the latter.

Amid such privations it may appear strange that the external organs should be as perfect as we find them. In explanation I would direct attention to the circumstance that, in this particular, the present case illustrates and confirms a law acknowledged and received by physiologists :—*That the presence in either sex of the primary formative organ, the testis or ovary, determines the external sexual characteristics of the individual, independent of all other organic imperfections.* The universal obedience to this law which we behold in nature prepares us to find in the present case, *wherein the ovary was present*, the mammæ, external organs of generation, and feminine contour, perfect. The converse of the case in point is fully attested. Morgagni[a] relates an instance of a woman in whom the ovaries were absent, and the sexual characteristics shared in the privation. A similar case is recorded by Mr. Pears[b]. Chereau[c],

[a] Lib. III.; Epist. xlvi.

[b] Philosophical Transactions, vol. xcv., p. 227.

[c] Mémoires pour Servir a l'Étude des Maladies des Ovaries, Premier Mémoire, p. 117.

speaking of the effects of such a deficiency, expresses himself thus:—" L'absence complète des deux ovaires a une telle influence sur tout l'organisme, que le femme affectée de ce vice de conformation, ne se revêt plus des caractères propres qui la distinguent de l'homme; le bassin ne s'élargit point, les mamelles n'acquièrent aucun développement et les règles sont nulles. Les parties génitales externes subissent aussi des modifications: le vagin est plus étroit, les nymphes sont plus petites, le clitoris réduit à un petit tubercule." Pathology, if we seek its testimony, bears witness to this physiological law; and we need seek no further than the works of Percival Pott[a] and Sir A. Cooper[b] for instances in which, after the removal of the ovaries and testes, the distinctive sexual characters gradually faded away.

From the attentive consideration of the facts which I have laid down, and from the interpretations which I have ventured to put upon those facts, I trust we may presume to draw the following conclusions:—

That the case under consideration is an example of development arrested at a certain recognized point;

That the arrest took place before the completion of the third month of intra-uterine existence;

That the Wolffian body was the blighted organ, and most especially its true excretory duct;

That the case illustrates and confirms the observations hitherto made relative to the growth of the genital apparatus; And—

That it offers confirmation of the physiological law:—*That the sexual characters of the individual depend on the presence of the primary formative organ.*

It may be urged that this lengthy disquisition is of little value, because I have merely shown that in all probability the Wolffian bodies were the organs primarily in fault in this case, but yet have not explained *why* they were so. Unfortunately this is too true; nevertheless, to my own mind, I have succeeded in clearing up, *to a certain extent*, the difficulties which such phenomena suggest to contemplation. It is admittedly interesting to know that the deformity termed "hare-lip" depends on non-union of the embryonic intermaxillary bones, and is only an abnormal persistence of a condition of the soft parts natural to a certain period of intra-uterine life; it is no less agreeable to find, in the investigation of the development of the occipital

[a] The Chirurgical works of Percival Pott, by Earle, vol. ii. p. 210.
[b] Sir A. Cooper on Diseases of the Testis, p. 53.

and frontal bones, an explanation of the ordinary situation of hernia cerebri; and in the circumstance of the development of the laminæ of the vertebræ *proceeding from above downwards*, a reason for the almost invariable location of spina bifida in the lower dorsal or lumbar regions. In like manner, it appears to me satisfactory to form conclusions from probable grounds relative to the period of fœtal life at which the arrest of development under consideration took place, and what the organs in fault were. I shall scarcely be thought presumptuous, if I suggest that, further than such conclusions, physiology avails us not to reach. It is our only guide, but at best an imperfect and too often a fallacious one; its very principles, with few exceptions, varying from day to day; its utmost achievement a mere postponement of the difficulties we seek to unravel and understand—an entrancing reverie, wherein a votary of science might dream away his life, were he not too roughly jostled and awakened by more stern realities. Respecting the *cause* of the non-development of the Wolffian bodies I confess myself entirely ignorant; yet even on this point I may venture a conjecture. The course of nature appears to suffer disturbance mainly from two influences—accident and disease. Now, the circumstances of the fœtus at so early a period as the third month render it improbable that accident could have affected the Wolffian bodies, and them alone. Therefore I suspect their alteration, whatsoever its nature, to have been pathological. That it was symmetrical there is no doubt, and this circumstance in itself opens a wide field for discussion. Were I to pursue it, probably I might be thought over-speculative, or taxed with endeavouring to refine beyond my depth. There is still another point of interest connected with the present subject which appears too striking to pass in silence, namely, that the study of the homologies of the genital apparatus in the sexes, and of the processes of evolution of the Wolffian bodies and generative glands from their primary hermaphrodite type to their ultimate perfection in the male and female respectively, is the true key whereby to elucidate, as far as our limited capacities may permit, the many strange instances of malformation of those organs which come under observation.

In conclusion, we may derive from the study of this remarkable case a useful lesson as practical surgeons, warning us of the immense risk incurred by any one adventuring to attempt by operation the establishment of an artificial vagina, unless the test of "*double touch*," by means of the finger in the rectum and the catheter in the bladder, gives previous assurance of the existence of the uterus, and of ample space for the operation

between the urethra and bladder in front and the bowel behind. Had any one foolishly essayed such an attempt in the present instance, a dissection of less than an inch in depth would have brought him into the cul de sac of peritoneum, which descended between the rectum and bladder, so deep as nearly to touch the dense structure closing up the vaginal orifice.

Art. VI.—*Internal Urethrotomy.* By Redfern Davies, Surgeon to the Birmingham Workhouse.

In the Number of the "Medical Association Journal" for June 8, is a very interesting paper by Mr. John Gay, entitled, "Incisions for Stricture, compared with Dilatation." There are, however, some points in it upon which I do not quite agree with him.

Firstly, as to the reality and persistence of cure, after Syme's operation, or the external division of stricture, only having operated upon two cases, my experience, as that of any other one man's, must be and is very small.

In the first case the following note was taken in my report book, October 13, 1858:—George Brown, aged 29. Has been the subject of stricture for some twenty-four months. Twelve months ago, difficulty in making water coming on, an instrument was used; this was followed by complete retention for nine days. A swelling appearing beneath the scrotum, it was opened, and urine came away to the amount of three quarts, "running away in a stream as big as my little finger."

In February, 1858, he went into the General Hospital, all his water escaping by an aperture in his thigh. In May an instrument was passed into his bladder, and in July all his urine came by his urethra, and has continued to do so. The day before he left, a No. 8 catheter was freely passed.

When I first saw him, in October of the same year, I was only able to get into the bladder a No. 2 catheter, and that with difficulty. By degrees, however, and by a treatment extending over about two months, I was able to introduce a No. 8 catheter; but finding that after a six months' treatment, if the catheter was omitted for a week's time, I could only get a No. 4 into the bladder, and the patient desiring something more to be done for him, I determined, he being now in capital condition, to divide the stricture externally.

Accordingly, on February 17, 1859, in the presence of Drs. Walker and Bartleet, I did so, and passed a No. 9 wax bougie into the bladder. The wound and patient got on all right, and

he never required any instrument during his life. Upon death, April 11, 1860, from phthisis, the following was the condition of the parts, as seen by Mr. Oliver Pemberton:—

Before any disturbance of the parts had taken place, a No. 8 catheter was easily passed into the bladder, when, on laying open the dorsal surface of the urethra, from the meatus to the bladder, the following appeared:—At a distance of five inches from the meatus was seen the mouth of a canal which had burrowed some way into the soft parts; between this and the vesical end of the urethra were several smaller apertures, all on the under surface. At eight inches from the meatus was seen an opening, one inch by three-fourths of an inch, and divided by a partition into two portions, each of which was subdivided again into many channels, which completely tunnelled out the under surface of the bladder. From the bladder to the perineum, all the soft tissues were considerably condensed and hardened.

In the second case, which occurred in a man about thirty years of age, from a protracted gleet, two strictures were well made out, admitting at first a No. 2 catheter, which subsequently allowed a No. 9. Finding, however, that when the catheter was not used, even for a few days, the strictures again became troublesome, I decided upon dividing them, and did so, January 5, 1860. When he left the workhouse, some three months ago, I passed a No. 10 catheter without any difficulty.

Some time since, when reading Mr. Henry Thompson's opinion of the value of the internal division of stricture, and having been much struck with it in the hands of M. Civale, when in Paris, I determined upon the first opportunity to try it; and in October, 1860, a case occurring, I did so, using the urethrotome advocated by Mr. H. Thompson; and immediately after dividing the stricture, I passed and retained in the bladder a No. 10 gum-elastic bougie, for about forty-eight hours. In a month's time I passed into the bladder a No. 10 catheter. Since that time I have had occasion to do internal division four times, and have always found the men say, when by chance seen again, that they never had anything the matter with their water.

The use of the bougie directly after the operation is not for the sake of dilating the strictured urethra, but for the purpose of preventing the cut edges of the urethra being in contact with the urine until such time has elapsed that they get glazed over with lymph, as I had heard in Paris of some accidents happening where this precaution had not been observed.

The urethretome is thus used:—Having been introduced

ordinarily, and carried to the vesical aspect of the stricture, the strictured portion having been made certain by a peculiar sensation the hand holding the instrument experiences, as it passes through the stricture, its concealed blade is made to emerge, by a slow sawing movement, and cut its way through the stricture along its dorsal surface; the blade having been put back again, the instrument is withdrawn, and a No. 10 bougie passed into the bladder, and retained for about forty-eight hours. No pain is experienced, and not more than twenty drops of blood are lost during the process.

That dilatation will cure nearly all strictures is, I believe, admitted by all surgeons; but that there is now and then a case which remains *uncured* by dilatation is allowed by those who have much to do with stricture.

Supposing in such a case dilatation having failed (either from every time a catheter is passed such severe constitutional disturbance arising as induces the surgeon to suspend his treatment, or from the stricture returning upon every occasion that the use of the catheter is left off), what is the surgeon to do? Mr. Henry Thompson so well discusses the use of the nitrate of silver and caustic potash, that I shall take the liberty of quoting his resume on these subjects:—

"That the nitrate of silver, lightly applied, exerts a salutary action on the diseased surface of the urethra in relieving inordinate irritability, and checking undue vascularity and disposition to hemorrhage, as it does in similar conditions of the skin and mucous membrane in other parts of the body, and *thus it becomes a useful adjunct to dilatation.*"

And again, speaking of potassa fusa:—"It may, perhaps, *aid dilatation* in the reduction of some strictures, probably by facilitating the solution of some of their component tissues."

Let us reduce the argument, therefore, to division of the stricture externally or internally.

Externally, persons after the operation have died, and the deaths have been computed at six per cent.; in some cases, moreover, a *cure* has not happened.

By the internal method M. Civale, who has had the greatest experience of any person, says that he has never known of a case dying, and I believe he considers it *perfectly to cure.*

Art. VII.—*On Acute Arachnitis.* By H. R. de Ricci, M. D.

In the last number of this Journal I published the notes of an interesting case of chronic sub-acute arachnitis; I now subjoin, by way of contrast to it, the following cases of the acute form of the same disease. In the summer of 1856, I was hurriedly sent for one afternoon to see the child of a wealthy farmer, who had suddenly been seized with spasms, vomiting, and delirium. I quickly arrived at the patient's home, where I found the sufferer, a handsome boy, of between 12 and 14 years, stretched on the bed, apparently unconscious, legs and arms extended, hands clenched, head slighty retracted, teeth set, pupils unequally contracted, conjunctivæ reddened, and the whole body bathed in perspiration. While I was intently looking at him, a spasm came over him; his features worked convulsively, as also his limbs; and he screamed, or rather yelled, repeatedly—the attack was very like a fit of epilepsy, but the boy did not foam at the mouth; and after the attack, which lasted only about five minutes, was over, although the screaming and the convulsive working of the features ceased, yet the hands remained clenched, the teeth set, and a considerable degree of strabismus remained behind.

The history of the case was this:—the boy, although strong and healthy in appearance, had never been so in reality; he had been spoon-fed as an infant, had suffered much in teething, and had slight convulsions at that period, more times than once; he seemed, however, to have at last outgrown this early delicacy, but he would often complain of headache if he applied to his books too long, or if he had any puzzling problem in arithmetic to work up; but on the whole he seemed stout and healthy. The day of this attack he arose well, at least not complaining, but he did not eat as much breakfast as usual; it being Sunday, he went to church with his parents, where he found it very difficult to keep awake. On his way home, he got sick in the car, vomited his breakfast, became deadly pale, and, from the disconnected account I could collect, seemed to have fainted for a time. On his return home, he was given half a tumbler of punch, and laid on the bed, from which in a short time he got up, saying he felt quite well; he then walked out into the lawn, where he lay down in the grass, and in a few minutes he was seized with a screaming fit, similar to the one I had just then witnessed, and which was the third he had. Between each attack he lay perfectly quiet on the bed, to which he had been immediately carried; if called by name, or otherwise roused, he would answer in a short, petulant, unhappy tone of voice, and immediately sink again into his previous passive

state. After the fit I had witnessed passed away, I felt his pulse, and found it beating 82 in the minute, small, jerking, and uneven; the surface of the body was not hot, but bathed in perspiration; head rather hot, especially in the occipital region. I omitted to state that, before the second screaming fit, he had vomited copiously of green and yellow matter.

At first I was inclined to suspect a case of poisoning, probably with aconite, of which plenty was overrunning the untidy garden; or with Œnanthe crocata, which also grew abundantly in the ditches; but after carefully examining the case, I discarded all such suspicions, and came to the conclusion that I had to deal with a very serious brain affection, probably a case of arachnitis involving the whole of the brain, and principally the base; which last I inferred from the condition of the eyes, resulting from pressure upon the optic nerves, the third pair, and others which supply nervous filaments to the eyes. I also suspected the probable existence of tubercles, but that more from the early history of the patient, than from any immediate symptom.

There was no time to be lost: if remedies were likely to be of any use, they should be applied immediately, and pushed vigourously. I gave him at once two drops of croton oil in a little brown sugar, to act rapidly on his bowels, and thus remove any local irritant, should any happen to be there; and at the same time wrapped his feet and legs in flannels, wrung out of hot water, and sprinkled with turpentine. In less than an hour, a messenger I had dispatched returned with a supply of leeches; and of these I applied six behind the mastoid process of the left side, which I selected in preference to the right, principally because it appeared to me that both the strabismus and the spasmodic movements were greater on the right side than the left. I ordered the patient one grain of calomel every second hour; inunctions of mercurial ointment on the sides of the thorax and thighs; and a suppository containing ten grains of mercurial ointment, to be passed up into the rectum as soon as the purgative had ceased to operate.

By the time the leeches had fallen off, the boy was notably improved; the rigid spasm of his limbs had disappeared, and he answered questions better: when questioned if he had any pain, he said, "yes," and carried his hand to his head. I now turned my attention to staunching the blood, which was still flowing from the leech-bites, being anxious to preserve as much as possible the vital forces of the lad, as the chances of recovery in every disease are directly as the amount of these forces, and *vice versâ*. The feet and legs being well reddened, and the patient complaining of their being sore, I had the flannels removed;

after which the boy dozed to sleep, and I left him for the night.

The following day I visited him early, and was glad to find he had not lost ground; on the contrary, he seemed better in some respects; the strabismus was less, for instance, but the expression of his countenance was very vacant; and when called by name, he would look round with an astonished air, and would seemingly have to collect his thoughts before he could answer questions; his pulse also was very much slower, only fifty-eight in the minute; tongue creamy white, and moist; has some pain in the head, but complains especially of the pain in his feet and legs caused by the epispastic applications of the previous evening. His bowels had been abundantly acted on during the night, and the suppository had only been introduced towards morning; no appearance of ptyalism as yet. Ordered to remain quietly in bed; no visitors, no talking; some strong chicken-broth and toast every fourth hour, water to drink if thirsty.

On the following day, the third from the attack, there was a decided mercurial fetor from the patient's mouth, all mercurials were consequently stopped; but as no additional improvement was apparent in the patient's manner, I thought it well to apply a blister to the top of the right arm, at the same time that I established a caustic issue on the top of the left. The reason why I applied a blister at the same time that I put in the issue was to gain time; the blister would be discharging within eight hours, whereas the issue would take eight days; and I applied it to the arm in preference to over the neck, because I thought it would cause less annoyance to the patient, and also because I believe that in most affections of the head (except when it is required to rouse the patient quickly) derivatives, such as blisters, issues, setons, moxæ, &c., &c., act better if not in the immediate vicinity of the seat of disease.

I shall not weary the reader by leading him with me through all the various changes which succeeded each other in the treatment of this case, and shall confine myself to stating the results. Ptyalism was fully established on the fourth day of the disease, and with it came a marked improvement in the condition of the patient, which was further increased when the issue began freely to suppurate. During the whole time that my patient was salivated, he was freely supported with strong chicken-broth and beef-tea, together with an ample supply of farinaceous food. On the fourteenth day of his illness, having expressed a wish for wine, I allowed him a small quantity of sherry; and finding it agreed with him, I increased the allowance by degrees to two glasses a day. He eventually made a good recovery. During

his convalescence, and long after, he took small quantities of iron daily, often changing the preparations; but those I principally adopted were the iodide of iron, phosphate of iron, and the citrate of iron and strychnia, in doses never exceeding two grains daily.

The following case, though less satisfactory in its result for the patient and the credit of the physician, is yet, perhaps, more instructive. In this case the patient died; and the *post-mortem* appearances I had the satisfaction of seeing were, probably, those I should have met with in the previous case, had it terminated in death, and had I been permitted to examine the head.

A. B., an inmate of the workhouse, aged about 11, was suddenly attacked one evening in the autumn of 1854, with violent vomiting; he had been well, at least not complaining, during the day; and the attack was so sudden, that the medical officer of the workhouse thought at first that it was a case of poisoning. As I happened to be paying a visit to that physician, I went with him to the hospital to see the patient. The vomiting being extremely urgent and exhausting, our attention was primarily directed towards relieving it, which we endeavoured to do by administering small doses of strong brandy and water, with two or three drops of chloroform in each dose; we also applied a mustard poultice to the pit of the stomach; but the sensibility of his skin was so exalted, that he could not endure it for more than a minute. By degrees, however, the vomiting subsided; but the child continued moaning, and looking about him with a strange and terrified look, and at times starting and giving a faint shriek, followed by an increased moaning. The surface of the body was cool; and though during the paroxysms of vomiting he had been bathed in perspiration, now that these had ceased, his skin had become dry. The pulse, apparently normal, beat but 80 in the minute; his respiration was, however, quick and irregular. When spoken to, he answered coherently, though tardily, as if he required time to collect his thoughts before he could answer. I asked him if he had pain anywhere? and he answered "yes," promptly; but when I asked him where the pain was? he seemed to think—to hesitate; and, with a strange astonished look, his eyes wide open, and a somewhat vacant stare, he would carry his hand tremulously to the top of his head, and move it all over it. He had no convulsive movements, no rigidity, no strabismus as yet. My friend ordered him at once a copious enema, with castor oil and turpentine, which was administered with O'Beirne's tube; three leeches to each mastoid

process; and a blister to the nape of the neck. The brandy and water with chloroform to be continued as long as any tendency to vomiting remained; and, as soon as he appeared able to bear it, five grains of calomel. The following morning the patient seemed better; he had completely lost that hyperæsthesia, which had been so remarkable a symptom the preceding evening; his general aspect seemed also improved; the bowels had acted freely; and he neither moaned nor screamed. He was now ordered mercurial inunctions, so as to bring him as rapidly as possible under its specific action, and for diet beef-tea. Beef-tea, indeed—*nomen satis* !—beef-tea in any hospital is a very mythical compound; but if that hospital be a work-house hospital, the beef-tea will be a strange article of diet indeed. I once saw my hospital matron,—and she was a most excellent and intelligent woman in her way, and could treat fever as well as any medical man, and better than many,—for if poor Count Cavour had been under her care, she would not have allowed him to be bled to death !—well, I saw my nurse set to work to make a pint of beef-tea with four ounces of beef that had been two days in pickle! But, to return to our little patient,—we left him with much better hopes than we had entertained the previous evening. On the following day, the third of his illness, he looked the same; there was apparently no change; but I remarked that the pulse was considerably slower; and the skin, which on the first evening was so acutely sensitive, seemed now to be less so than normally; he moaned also a little from time to time, and was constantly moving his hands to his head. As yet no salivation, or even fetor of the breath. The following day we found him decidedly worse: look haggard; respiration very slow; general anæsthesia; surface cold; breathing irregular; pulse slow and irregular. Ordered six leeches more to the mastoid process; a tablespoonful of brandy and water every hour, and a fetid enema at once.

The next morning we heard that he had died during the night. He was attacked with violent screaming fits, accompanied by convulsions, in one of which he expired.

Twenty-four hours after death we made an examination of the head. Nothing particular attracted our attention on removing the calvarium; perhaps the surface of the arachnoid was rather dry, and adherent, together with the pia mater, to the surface of the convolutions; having removed the brain, and turned its under surface upwards, we found the base of it covered with a tenacious layer of puriform matter, almost of the consistence of false membrane, and in colour of a lemon-yellow, inclining to green in some places; this exudation came forward as far as the

fissures of Sylvius, dipping freely into them, and backwards as far as the medulla oblongata, but did not extend into the vertebral canal; it was situated beneath the arachnoid, and so tenacious as to bear raising up from the surface of the brain on the handle of the scalpel. The ventricles contained some serum, but not much; and the brain, when sliced, presented a vast number of minute spots, which gave it a pale mulberry colour in some places, and rendered the texture of the brain softer than natural. The other cavities were also examined, but nothing worthy of note was detected in them.

Art. VIII.—*The total Destruction of the Penis not an absolute Cause of Impotence.* Case and Remarks: By E. J. Chance, F. R. C. S.; Senior Surgeon to the Metropolitan Free Hospital; and Surgeon to the City Orthopœdic Hospital; London.

In the month of February, 1860, my colleague, Dr. H. Stavely King placed under my care a patient labouring under stricture of the urethra, in whom there was a total absence of the penis, except a very small nipple-like projection. The case was so severe, and the suffering so great, that the man was immediately admitted as an in-patient of the Metropolitan Free Hospital.

It is not my intention on the present occasion to enlarge on the symptoms under which this man suffered, or the treatment adopted for the relief of the stricture, other than to say that, with considerable difficulty, a small catheter (No. 2) was introduced into the bladder, and allowed to remain for twenty-four hours; and that, after its withdrawal, others of a larger size were successively employed, but not allowed to remain in the urethra, as the urine now began to pass freely. After a week's residence in the hospital, the man considered himself so much better that he requested permission to leave, assigning as an especial reason for his wish—"that his wife was hourly expecting to be confined." As he was about leaving the hospital he was, however, suddenly attacked, while attempting to pass his urine, with violent pain in the region of the bladder, which continued without intermission for eighteen hours, and then only partially subsided. After three days he suddenly and unexpectedly expired while at stool.

The object that I have at present in view in bringing this case before the medical profession is entirely confined to its

medico-legal bearing, which, in my opinion, is deserving of serious consideration.

The man's history is as follows:—He was thirty-five years of age. About ten years previously to his admission he contracted gonorrhœa, which he neglected; two months subsequently he found a black spot on the inside of the prepuce, which soon became a sore; this sore gradually increased in size for six or seven months, until it had destroyed above an inch of the extremity of the penis, and at last caused a total stoppage of the water.

During all this time he was unattended by any medical man, and only took "foolish medicine, such as one told him and another told him;" but now, as his suffering was so great from the retention of urine, he was compelled to seek for aid, and therefore applied at, and was admitted into, the Oxford Infirmary. On his admission he was so bad, that an operation was performed immediately, and an instrument passed into the bladder from the perineum. The instrument was left in the bladder for three weeks. The sloughing of the penis continued until the whole penis had dropped off bit by bit, except the small nodule or nipple-like piece of the upper portion of the corpora cavernosa.

He remained in the infirmary nine weeks. When he left, he could pass the urine in a small stream from the urethra, but it was with pain. From that time until he came under Dr. King's care he had no other surgical treatment.

In the early part of this paper I stated that he wished to leave the Metropolitan Free Hospital because his wife was hourly expecting to be confined. "His wife" expecting to be confined! I think I hear many readers exclaim. Yes, *his* wife: for, strange as it may appear, he had the hardihood, four years after leaving the Oxford Infirmary—i. e. four years after he had lost every portion of the penis except the nipple-like remnant—to marry a young woman of twenty; and, yet more strange, he had lived with her in harmony, and at the time of his death he had one child three and a half years old, subsequently to the birth of which his wife had miscarried, and she was daily expecting to be confined again.

I am quite aware of the smile of incredulity that is passing over the face of many of my readers at the idea of a man so mutilated begetting a child; but that incredulous smile is the proof of the importance of this case in the medico-legal point of view in which I desire to bring it forward.

Upon reference to Beck's Medical Jurisprudence, I find it

stated at page 35,—"The law presumes that the husband is the father of every child conceived during the term of wedlock, yet it allows an investigation as to the chastity of the female."

In the case I have now brought forward this man is therefore, *in law*, the presumptive father of the children; and, supposing there had been property, those children might have succeeded to it as his legal representatives, although they might have been actually the offspring of another by the unchastity of the wife;—but in this case the man asserted to me, over and over again, that he himself was the actual father of the children to his own satisfaction and conviction; nevertheless, if property were concerned, the legitimacy of the children, and their succession to that property, might be disputed by those next interested in it, on one or both of the following assumptions, viz.:—

1st. That the wife had been unchaste; and 2ndly. That the husband was absolutely impotent. I will therefore enter, as far as I am able, into the consideration of both these points.

The legitimacy or illegitimacy of the children in this case, on the ground of the chastity or unchastity of the wife, is in itself, in one respect, a matter of little consideration as regards the point which I imagine I can substantiate in this paper, viz: —*That such a mutilation of the penis is not necessarily an absolute cause of impotence*, inasmuch as illegitimacy from unchastity does occasionally occur although the husband is not impotent. On the other hand, however, if the facts in this case warrant a belief in the *chastity of the wife*, they become of importance, as they *help to establish the virility of the man*, although they do not absolutely prove it. I have, therefore, devoted some considerable time and trouble to an inquiry on this point.

As far as I have been able to learn, the man has always been respected by those who have employed him; and since his marriage his wife has been equally respected by his employers. By occupation he was a groom or hostler; and at the time of his marriage he held a situation at a livery stable, where he had dwelling rooms in the yard, to which rooms he took his wife. He continued in this situation for two years; since then he has been coachman to a private gentleman; and for eight months previous to his death, held another situation at a livery stable, where again he had dwelling rooms in the yard. I have mentioned these particulars because I have inquired into the character the wife has borne in each situation; and I am informed that she has been respected in each situation, and that at the time of my inquiries the widow of his late master

(the private gentleman) was most kind to her, thus proving that lady's approbation of all she knew of the woman's conduct during the time the man was their coachman. In the stable of his last situation, I was informed by the men engaged in it, that they had never seen her conduct herself improperly, nor had they ever heard of her misconducting herself; and, besides this, one of them spoke of her as the particular friend of his own wife and daughter, and he was evidently annoyed at the bearing of the questions I had put to him, and to one of them he sharply replied,—"Do you think I would have let my wife and daughter be frequently with her if I knew anything wrong?"

It is not unworthy of notice as bearing upon the conduct of the wife, that every one of her acquaintances with whom I have conversed has spoken of the *kind feeling that existed between the man and his wife*, and of the *harmonious manner in which they lived*. This harmony is hardly compatible with known or imputed unchastity in the wife; but it is perfectly in keeping with the reverse, and with his own full conviction and assertion that the children were of his own begetting.

In opposition to this negative proof of the chastity of the wife during her married life, I have to report that I have heard the legitimacy of the children disputed by a relative, *who knew of the man's mutilated condition*, and who, with a knowing look, and with an allusion to that condition, asserted, "of course they are not his." The same relative also informed me that he had always been on the most intimate terms, indeed "they were like brothers," and that "he knew his friend cohabited with the woman before he married her;" but, notwithstanding these statements, when I pressed him for any specific charge against the wife's chastity, or the children's legitimacy, he admitted he could not bring any, or even point to any *suspected* individual with whom the wife had been unchaste. Moreover, this same relative *had introduced his* own *wife* to the woman he had thus depreciated in character; and his wife, on whom I subsequently called, assured me that she had never seen any impropriety in the conduct of the woman in question.

I have endeavoured, in the foregoing remarks, to lay the facts and statements that have come to my knowledge respecting the first point before my readers in as simple a manner as I possibly could, and I must therefore now leave each person to draw his own conclusion therefrom. At the same time I must remark, that *should* their judgment be decidedly against the

chastity of the female, it does not prove that a mutilation of the penis, such as I have described, is an absolute cause of impotence.

The second point upon which the legitimacy of the children could be contested is the assumed absolute impotence of the husband; and I shall therefore address myself to the inquiry, whether such a mutilation as this man had suffered is an absolute cause of impotence.

In the article on "Impotence," in the "Cyclopœdia of Medicine," vol. ii. p. 595, it is laid down that "Deficiency of the penis, whether natural or accidental, is an absolute cause of impotence." Some lines further on, however, it is stated, "it is difficult to determine the extent to which the penis may be mutilated without destruction of the power of procreation. The glans has been frequently lost without being attended by impotence; and both corpora cavernosa have been destroyed, but, the urethra being preserved, the individual retained his virility."

It would appear from the above that the author of the article (Thomas Edward Beatty) contemplated by the words—"but, the urethra being preserved, the individual retained his virility,"—that in all the cases of mutilation to which he had alluded there was a portion of the penis left in which the urethra was situated, and insuring the introduction of the semen into the vagina. In the case I have now brought forward, the urethra is not so situated; and this circumstance adds another point of interest to this case, to which I shall allude after I have spoken of the power he possessed in other respects.

By the man's own account, the nipple-like remnant of the corpora cavernosa became, under venereal excitement, about an inch in length, and was sufficient to separate the labia, and just to enter the orifice of the vagina, as also to give rise to the venereal orgasm, and cause the emission of the semen. This statement of the man was verified, after his death, by the admission of the wife. Her expression was,—"I was much disappointed at first; but I have long forgiven it." "He was a good husband to me."

It is quite clear from the above statement, and from those already cited, that a very diminutive portion of the penis is sufficient in a lustful man, such as this man was reported to have been, provided the testicles remain in health, to excite the venereal orgasm, and to cause the ejaculation of the semen, and as such is proved, it now becomes the question, whether the emission of the semen at the vulva is sufficient for impreg-

nation,—or whether, as more generally supposed, it must be ejaculated into and within the vagina?

In the present case the urethra terminated in a depression half an inch below the undestroyed portion of the penis; and, therefore, although that remnant of the penis, according to his statement, became an inch in length during excitement, and just penetrated the vagina, the urethra remained buried in its depression on the scrotum; and the semen could, therefore, only have been ejaculated against the vulva, and not actually within the vagina.

That a penetration of the penis, and the emission of the semen into the vagina, is not absolutely necessary, is proved by the cases recorded in the "Cyclopædia of Practical Medicine," article, "Impotence," p. 600, some of which I subjoin:—"A young girl, married at the age of sixteen, had the vagina so narrow, that a goose-quill could scarcely enter it. A young and vigorous husband had failed in all his attempts, and some of the faculty who were consulted declared copulation impossible; nevertheless, after eleven years, this woman became pregnant, without any increase in the dimensions of the vagina." And in another case, related by Dr. Merriman, of a young woman *whom he was called to attend in her first accouchement*, whose vagina was closed by a membranous expansion about one-tenth of an inch in thickness, "This membrane occupied the entire opening of the vagina, with the exception of a small aperture, through which a pea could hardly have passed."

From these cases it is quite evident that the introduction of the penis is not absolutely essential to effect impregnation; and the author of the article in the Cyclopædia remarks:—"These, and many similar instances, &c., &c., are confirmatory of the doctrine laid down, viz.:—*That an emissio seminis at the orifice of the vagina is sufficient for impregnation.*"

In the present case, therefore, *if it can be established that the nipple-like remnant of the penis was sufficient to cause the orgasm and flow of semen*, it is evident, from the cases just quoted, that he also possessed the power of impregnating his wife, and therefore might be absolute father of the child she had borne, and of that she was expecting to bear. The only point remaining is, therefore, to adduce, if possible, evidence which corroborates the statement of both the man and the woman, viz., that this nipple-like remnant of the penis did become enlarged during venereal excitement, and cause the emission of the semen. This evidence has most unexpectedly been afforded.

The man had always been of a lustful character, as previously noticed; and I was informed by the intimate friend and relative formerly mentioned, that "a year before his marriage (*i. e.*, three years after his mutilation) he was in the habit of cohabiting with a woman who was known to my informant, and that she told him, in answer to a direct question upon the subject, that "he had no more than a walnut; *but that he could ease himself;* and though he did not satisfy her, she did not know how to bear herself." This statement was made to me by his relative as the proof that he was unable to beget a child, and that, therefore, the children could not be his own. It is, however, on the contrary, the absolute proof of the truth of the statements made both by the man and the woman, and fully establishes in my mind the point in question, viz.: that the mutilation of this man's penis was not an absolute cause of impotence; and that he might have been, and in all probability was, the *actual* father, as well as, *in law*, the presumptive father, of the children.

Art. IX.—*Operations for Remedying Deformities of the Lips, consequent on Congenital Malformation, Accident, or Disease.* By Francis Rynd, Surgeon to the Meath Hospital, &c.

If we examine the organization and structure of the human frame, we find it is composed of different organs and members, evidently constructed with a view to each other, and having such mutual relation and dependence, that if one happen to be defective, from original malformation, disease, accident, or other cause, the *whole* is thrown into a disordered state, and its functions cease to be properly fulfilled; in proof of this we need only select an individual organ, consider what its functions are, and observe the consequences of inability to perform them. The lips, for instance, assist in forming the mouth, in receiving and retaining the food during mastication and deglutition, in preventing the flow of saliva,—in short, they are a part of the digestive system; let both, or even one be wanting, as happens when destroyed by cancer, and we find the food falls out, the saliva overflows, severe pain attacks the teeth, gums, and jaws, nutrition ceases to be accomplished, and the whole system suffers, because the lips fail to concur in its support. My object in this communication is to mention a mode of treatment I have practised, and proved to be efficient in such a case.

Case I.—Daniel Hughes, aged forty years, admitted into

the Meath Hospital, June 19, 1842, a sickly, delicate, emaciated-looking man; complains of great discomfort from the state of his mouth; has severe pains through his teeth, gums, and jaws; is with difficulty able to retain his food, during mastication it falls out of his mouth unless he keeps his hand to it; his saliva is always flowing outwards; his articulation is indistinct, and some words he cannot pronounce at all. He states that, three years ago, a small sore came on his under lip, caused, he thinks, by his pipe in smoking; it gradually increased in size, and became so inconvenient and painful, that he applied to "a cancer-curer" in the country for relief; applications were used of the nature of which he was ignorant; they gave him intense pain; the result was, that the sore was destroyed, and with it the lip. He presented the appearance delineated in Figure 1, Plate IV., when he came to me, the under lip, from one angle to the other, being wanting. Having often remarked how very movable and elastic the soft parts are which form the chin, and the facility with which the chin can be pushed upwards, I contemplated severing their connexion with the bone, in the hope of turning them to a more extended use than they were originally intended for, and performed the following operation to make them form a lip:—

Assuming a line falling perpendicularly from each canine tooth to the margin of the jaw-bone as the boundaries of my incision, I passed my knife through the mucous membrane, and along the gum from one canine tooth to the other; my next incision, made in the course of the former, separated all the soft parts from the body of the bone, as far down as its lower margin, but no further, as I found this gave sufficient freedom to the parts to allow them to be drawn upwards to cover the teeth and meet the upper lip; I drew them up with strips of adhesive plaster brought from under the chin, and made to adhere firmly above the zygoma on either side; some more slips passing from one ramus of the jaw to the other, and brought over the symphysis menti, where they were made to press steadily, assisted materially in retaining the parts in their new situation; all were secured by a bandage, and the man was sent to his ward, with orders not to speak, and to keep his under jaw perfectly at rest; he was fed with eggs and milk, strong broths, arrow-root, gruel, and other food not requiring mastication, during five days; and on the sixth day after the operation we found the chin was adherent in its new position, the new lip was firmly up to the upper lip, and its inner surface was nearly healed, except where it pressed against the teeth; this was easily set right by a bit of simple dressing on lint laid

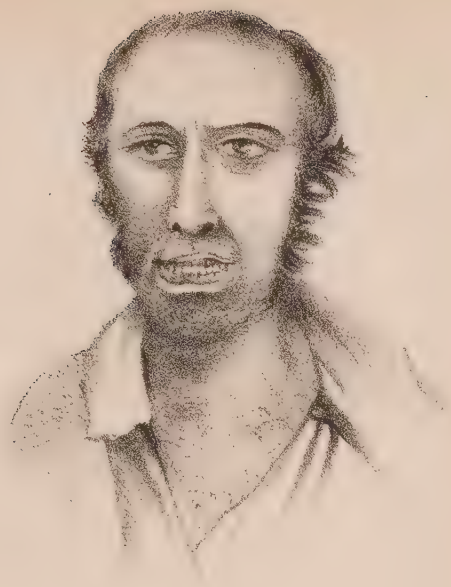

Fig. 1.

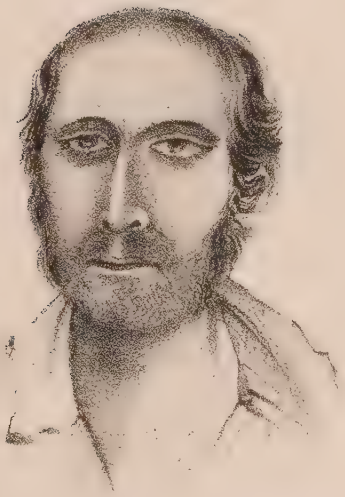

Fig. 2

Forster & Co Lith.

Fig 3

Fig 4

C° Lith.

between to protect it; and, on the fifteenth day from the operation, he could eat and drink as formerly, and speak distinctly.

The drawing, Figure 2, Plate IV., was made on the 20th of July, and he left hospital on the 23rd, most thankful and grateful for the benefit he had received. I was in the habit of seeing Hughes frequently for five or six years after his operation; and he often told me he "was just as well as before he met his first misfortune, and rather better, for he had given up the smoking."

Case II.—The next case of this kind that came under my care was a woman recommended by my friend Dr. Stokes:—

Catherine Tallon, aged fifty-five years, had been operated on for cancer in the under lip, five years before; and three years after that event she lost a portion of her upper lip by phagedenic ulceration. Admitted into hospital, May 29, 1843, a wretched emaciated-looking creature, unfit to undergo any operation, she complained of rheumatic pains through her head, face, and jaw, and inability to eat or drink for want of her lips; she was obliged to speak very slowly to be understood, her pronunciation being so very defective. Her appearance is accurately delineated in Figure 3, Plate V. I had her put on good diet and tonic treatment, and at the expiration of a month I performed the following operation on her upper lip:—

Having placed her in a chair, her head being held steadily by an assistant, I felt on the inside of the lip for the course of the facial artery; having ascertained it, I turned the lip outwards, and made an incision through the mucous membrane, parallel and external to the artery, extending from the highest point at which it could be felt in the lip downwards very nearly to the angle of the mouth, but external to it; a few touches of the knife in the course of this incision divided the fibres of the levator muscles to a sufficient extent to allow the lip to be drawn downwards and inwards; the opposite side was treated in a similar manner; a bit of lint was placed between the sides of each incision, and the lip was bound down to the jaw with a bandage, a pad of lint intervening to press it more decidedly downwards. It remained in this state until the fourth day, when the bandage was removed, as well as the lint, from the incisions, in each of which suppuration had set in. From this day to the twenty-sixth the lip was drawn downwards, padded and bandaged to retain it in the elongated state, every second day; by this time the incisions had healed, and about a quarter of an inch had been gained to the length of the lip; it very nearly covered the teeth in its state of rest, and is accurately delineated in Figure 4, Plate V.

On the 4th of August I operated on the under lip. I made no deviation from my operation on Hughes; but she was rather difficult to manage, and the positive union of the chin to the bone in its new position was not confirmed until the twenty-first day after the operation. From this date, and up to the 10th of September, aphthæ occasionally formed on her tongue, but they were removed by small doses of grey powder, at intervals of a couple of nights, with sulphate of magnesia in infusion of roses the following morning; a good nourishing diet, and daily exercise in the hospital grounds.

Figure 4 is a true representation of her appearance on the 23rd of September, when the drawing from which it was taken was made. She left hospital on the 25th, perfectly well, and the lips able to perform their functions satisfactorily. During the next two years I saw this woman frequently; she had got into excellent health and good condition, and was well pleased with her lips.

Case III.—Bryan Mac Dermott, aged 36, was admitted into the Meath Hospital in the month of May, 1848; he was thin and spare in habit, looked pale and delicate; he complained of suffering great inconvenience and pain from the state of his mouth. The teeth and gums of his lower jaw were exposed, having lost the lip, from cancer, two years before; his saliva flowed outwards continually, and he was unable to retain his food during mastication without the assistance of his hand to his mouth; his pronunciation was indistinct—in short, his symptoms very much resembled those of the cases before related; and Figure 5, Plate VI., is a true delineation of his appearance. I operated on him, June the 9th; the operation was similar to that performed on Hughes; on the 14th, union of the parts in their new situation was confirmed, the under-lip being well up to the upper; and on July the 3rd, when the drawing was taken, he presented the appearance shown in Figure 6, Plate VI.; he had a good, useful lip, and was discharged from hospital happy and grateful for our services. I have never seen him since. He was a true Milesian, from the far West, and could only speak Irish.

Case IV.—Terence Barrett, aged 70, was admitted into hospital suffering from cancer; it engaged the whole of the under-lip, very nearly as far down as the set off of the chin, and extended from one angle of the mouth, to the other; it was very painful, bled frequently, and a gland situated immediately under the margin of the jaw was enlarged to the size of a pigeon's egg; he had pain in the jaw-bone and teeth occasionally; but, with the exception of the gland, there was no appearance of the disease having extended; the gland was solitary, soft,

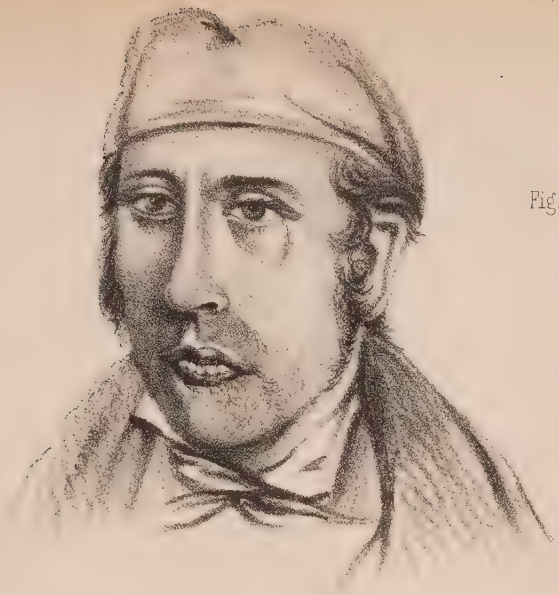

Fig. 5.

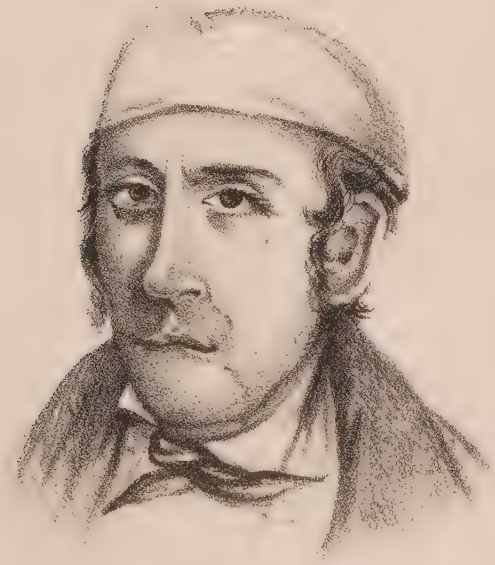

Fig. 6.

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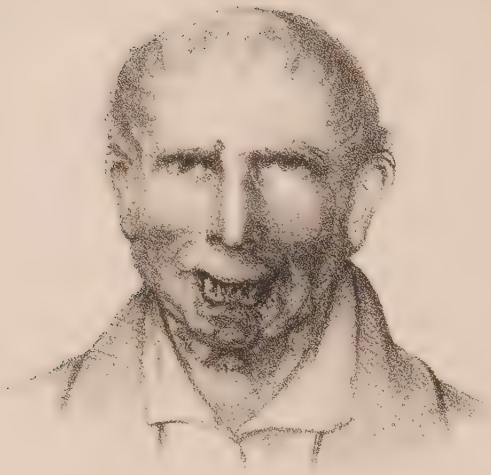

Fig. 7.

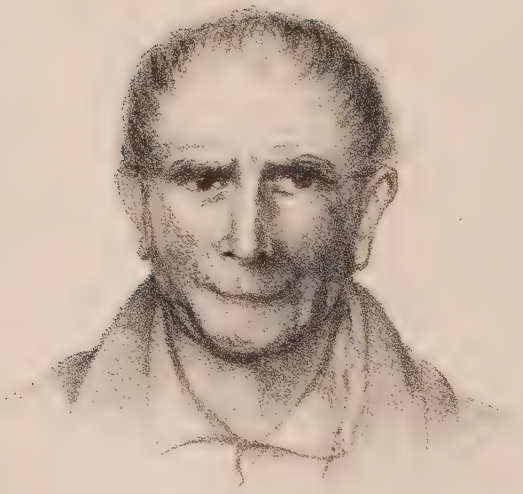

Fig. 8.

Forster & C°Lith.

smooth, and movable, and gave no pain when pressed. The poor man urged me to remove the lip, and said he "would rather die at once, than carry it any longer." I could not refuse his entreaties; and having made him aware of the unfavourrable consequences which might follow, without at all shaking his determination, I removed the whole lip from one angle to the other, the incision reaching down to the set off of the chin; I then drew the skin and mucous membrane together along the entire cut surface, and applied sutures to retain them in contact; it was necessary to apply a ligature on one vessel only, the bleeding from others was controlled by passing the sutures through them. This operation was performed on the 14th of June, and the parts were quite healed on the 4th of July, on which day I had a drawing taken of him, by the eminent anatomical draftsman, Mr. W. Foster; and there cannot be a more accurate delineation than he has given of him, in Figure 7, Plate VII.

On the following morning, the 5th, I made a minute examination of the parts, with the intention of proceeding to the operation for substituting a lip in place of the lost one, if the result was favourable. I found the parts perfectly healed; the mucous membrane and external skin had united, and presented a smooth, healthy surface; and the gland under the jaw had diminished at least two-thirds in size. He complained very much of the continual flow of saliva, inability to retain his food, more especially fluids, and that he could not speak to be understood. I proposed the operation to him; he willingly assented and I performed it forthwith. The parts between the two imaginary lines before described were severed from the body of the jaw-bone, down to and a little beyond its inferior margin; there was so much wanting to replace the piece that had been removed, that I made the separation more extensive in this case than in any of the former. I then drew them up until the margin of the future lip reached the upper-lip. I secured it as firmly as I could in this position with adhesive plaster and bandage; there was no hemorrhage worth mentioning; and the stout old fellow went to his ward full of the hope of again having a healthy and useful lip. I visited him six hours after the operation; he was comfortable, but had not taken any food; I gave him a pint of milk with eggs and sugar beaten up in it, which he relished amazingly, and I left him for the night.

July 6th.—He is doing well; had a good night; feels no pain; the under-lip well in position; had his breakfast of tea, eggs, and bread, all mixed up together sufficiently consistent to drink it.

The foregoing is the report of the morning at 10 o'clock

visit. This is at 7 o'clock P. M. thirty-three hours after operation: he has just taken a pint of soup, fed with a spoon; some of it got down between the bandage and the chin, and disturbed him so much, that I removed the bandage and adhesive strips which were applied to maintain the new lip in its situation after the operation. I found union had taken place, and the lip stood well up to the upper one, I applied fresh strips and bandage with caution, and enjoined him to keep perfectly quiet, to avoid speaking, or elevating his chin.

July 7th.—I removed all the dressings to-day. He asked for the looking-glass to see himself; his exclamation, on looking into it, is much more expressive than any report I could write. He smiled, and uttered but one word—"*Grand!*" He then ate three eggs, and drank a cup of tea, with perfect satisfaction, the lip performing its office completely; I applied the dressings again, and left him in high spirits.

July 8th.—Eats and drinks and retains the food in his mouth, both solids and fluids, as well as he ever did. The saliva no longer flows from his lips; the application of the bandage and plaster is still continued, and his food is of a consistence not to require much mastication.

July 9th.—All dressings were removed to-day. The lip is well in its place; he opens and shuts his mouth, eats and drinks without any assistance, and says his present lip appears to him to be as useful in every way as the former.

July 10th.—Is quite well; moves the lip with freedom in speaking, laughing, and eating,—in short, he has perfect use of it, and it is in excellent form. No appliances of any kind to support it are required.

While giving these hospital reports, I have to state that the care and attention paid to this case, amongst many others, by our hospital resident pupil, Mr. John Mulock, deserves my highest commendation. He is always ready, never absent, and kind and skilful in ministering his offices.

Figure 8, Plate VII., shows the appearance Barrett presented a few days after last report, previous to his discharge from the hospital.

Case V.—*Congenital Malformation engaging the Lips and one Side of the Face repaired by Operation.*—Matthew Levy, aged 8 years, a pallid, emaciated, scrofulous boy, admitted into the Meath Hospital, January 12, 1861. I had seen him the previous day, when he came to visit his mother, whose toe I had amputated for lupoid ulceration, with diseased bone, and I had him received as a patient on the following morning. He presents a most unseemly appearance. The angle of his

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Fig. 9

Fig. 10.

Forster & Cº Lith

mouth on the right side is opposite the first molar tooth, and the mouth extends without interruption to the last molar on the left side,—the teeth of both jaws, with the gums of the under, being uncovered and exposed for the entire distance. He can bring his lips together as far as the mesial line on the right side, but he has no power over the remainder; and when he closes his mouth so far, the continuation of the chasm remains open. His digestive system is so much impaired that he looks half starved, and so he is. His mother says she don't know how she reared him, it was such a difficult matter to keep the food in his mouth when she fed him, and the overflow of saliva kept his clothes continually wet. Fig. 9, Plate VIII., taken from a photograph, gives his appearance accurately.

On examining the portions of the cheek engaged in the deformity, with a view to an operation, I found they could not be approximated sufficiently to close the chasm without freeing the under partially from its connexion to the jaw-bone; I then sought for the parotid duct, and found it in the upper portion, about a quarter of an inch above the margin of the cleft. The facial artery was very small, and in the lower portion. Having ascertained these points, I performed the following operation on the 24th of January:—

The boy being secured in the lap of an assistant, I commenced an incision from a point corresponding with the canine tooth on the left side, in the under jaw, which terminated a little beyond the angle of the cleft, parallel to the gum in its whole course, and passing clear through and beyond the mucous membrane in its reflection on it. This incision gave sufficient freedom to the under lip of the cleft to allow of its being drawn upwards to cover the teeth, and meet the upper one; with a pair of scissors I made a continuous excision of the free borders of each lip of the cleft, extending from opposite one canine tooth to the other. I then brought the cut surfaces together with four needles, one especially introduced at each angle. I used the twisted suture, and thus accomplished the operation. There was one vessel only of any size to be dealt with; it was at the newly-formed angle of the mouth. I ran the needle through it, and saw no more of it.

The boy progressed favourably to the fourth day, when I removed the needles, and found the parts united, but not firmly, yet sufficiently that, with the aid of adhesive plaster and bandage, union was confirmed in six days more. He was greatly delighted with his new mouth, and still more with the use he was enabled to make of it; and he and his mother left the hospital in a much happier state of mind than they entered

it. Fig. 10, Plate VIII., is from a photograph taken of him three months after operation, and is an excellent representation of his present appearance.

I have little more to advance in favour of this operation; it is safe and simple, and the proof of its efficiency and usefulness is exemplified in the cases just reported. It is applicable in every instance in which, from disease, accident, or other cause, two-thirds, or even a larger portion of the soft parts forming the under lip and chin are defective. It is only to free the connexion of the parts from the body and margin of the jaw-bone, and sufficient substance can be drawn upwards to supply any deficiency. The imaginary lines drawn perpendicularly from the canine teeth to the margin of the jaw comprise between them the parts to be cut, as well as the extent of the incisions; beyond these lines we have the dental holes, with their nerves and vessels, which are avoided by keeping within them; besides, they mark the limit of the ordinary sized lip.

Advanced age does not appear to impede the healing process after this operation; the man of 70 progressed as rapidly as the man of 36. Not so constitutional taint: the operation on the scrofulous boy, Levy, though of the same nature, and on very similar parts, was not complete in its results until the tenth day—a prolonged period of six days, in comparison; but then it was quite complete; and constitutional taint turns out to be no obstacle to the ultimate success of the operation. The foregoing cases comprise all in which I have performed it; and if it is thought worthy of adoption by others in similar cases, I hope it may prove as successful in their hands as it has proved in mine.

Art. X.—*On the Structure and Pathology of the Hernial Sac.* By Thomas Hayden, F. R. C. S. I., L. K. & Q. C. P. I., M. R. I. A.; Professor of Anatomy and Physiology in the Catholic University of Ireland.

Having some time since made a series of observations on the structure and properties of the hernial sac, and the alterations it is liable to undergo in the progress of disease, with the view of elucidating some points as yet obscure in the pathology of hernia, I hope the result of the inquiry, though as yet in some respects incomplete, may possess sufficient interest to insure its perusal.

In the ordinary expulsive efforts of the abdominal muscles,

including the diaphragm, I find that a combined force equal to forty-two pounds is brought into action in a man of middle age and ordinary stature; and that, under circumstances of great difficulty, this may be increased to sixty pounds. The means by which this result was arrived at are, shortly, the following:—The broad abdominal muscles, being curved, tend, during contraction, to straighten themselves, and by this movement compress the abdominal viscera; but the contractile portion of them being situated laterally, they act with relation to each other at an obtuse angle, and propel the viscera forwards and inwards. The force of the diaphragm is directed forwards and downwards, whilst that of the levator ani is directed forwards and upwards; thus the united force of all the great expulsor muscles would appear to be concentrated upon the anterior abdominal aponeurosis in the neighbourhood of the umbilicus.

If, therefore, in the recumbent posture, the end of a graduated rule, held perpendicularly, be firmly pressed against the umbilicus with one hand, whilst it is loosely held between two fingers of the other rested upon some neighbouring object, and a voluntary effort of expulsion be made, it will be found that the abdominal wall ascends to a height of an inch and a half, as indicated on the scale. If now weights be substituted for the rule, and the latter be held, as before, resting upon the uppermost of them, we may calculate the force developed by the combined action of the abdominal muscles by observing the height to which they are capable of lifting different weights during forced voluntary contraction. Thus the greatest weight raised an inch and a half may be taken to represent their *minimum* force, whilst the greatest weight which they are capable of raising perceptibly will give their *maximum* force. Of course the standard taken is somewhat arbitrary, and the results, which are liable to variation in different individuals, not strictly accurate; but still I believe they are sufficiently so for the object in view, namely, to afford an approximate estimate of the united contractile force of the abdominal muscles.

It is obvious that every point of the surface of the abdominal cavity, large enough to afford exit to a portion of the movable viscera, must be capable of resisting this force, else hernia will occur. Ordinarily the expulsive force, on the one hand, and the resistant and cohesive property of the walls of the abdomen on the other, are so evenly balanced, that no protrusion can take place; but should derangement of the equilibrium occur, either by the sudden employment of a maximum expulsive force, or by a diminution of the power of resistance in the abdominal walls from interstitial absorption, or impairment of

the ordinary physical properties of the tissues, then hernia will occur; the situation of which will be determined by that of the yielding part, the bulk by its area, the length by the time occupied in the descent, and the composition by several circumstances, viz., the age of the patient, the site of the protrusion, the relative weight and volume of the intestines and omentum, &c.

The structure which first encounters the expulsive force of the abdominal muscles is the peritoneum; the power of resistance, therefore, with which this membrane is endued, the tissue in which that power resides, and the precise nature of the process by which it is overcome, and ultimately abolished, should occupy a prominent place in a systematic inquiry into the pathology of hernia.

In order to determine these points, I instituted the following experiment:—A small glass jar was half filled with rectified spirit, and over its mouth, one inch and three-eighths in diameter, a piece of fresh human peritoneum, cleanly dissected from the superjacent structure, was expanded and firmly tied in such a manner that the membrane depended somewhat into the jar without being immersed in the spirit; a well-adapted cork was now placed in the mouth of the jar, and through an aperture in its centre a closely fitting cylinder of wood was introduced, so as to put the expanded peritoneum on the stretch by one of its extremities, whilst the other projected above the cork to a distance of two inches and a quarter; over the projecting end of the cylinder three india-rubber bands were placed, and thence stretched over the bottom of the jar. A considerable propulsive force was thus brought to bear upon the peritoneum, putting it fully on the stretch, into the jar, whilst the spirit within prevented desiccation. In this state of tension it was left for ten days, from the 18th to the 27th of August, inclusive. When the tension was taken off, and the peritoneum removed, it was found that the membrane had entirely lost the power of reaction, and remained deeply indented where the cylinder had pressed upon it.

In order to determine the degree of pressure borne by the peritoneum, weights were appended to the india-rubber bands stretched over the jar used in the experiment, till they had attained the degree of extension previously reached. By this means I ascertained that that portion of the peritoneum upon which the cylinder had rested, one-fourth of an inch in diameter, had borne a pressure equal to four pounds, eight ounces, during the ten days occupied in the experiment. It will be seen from what has preceded, that this does not represent even the *mini-*

mum force developed by the abdominal muscles of a man of ordinary stature, and borne by the peritoneum in the effort of straining. The absolute amount of pressure, however, which is sustained by the hernial sac, is so liable to variation from many causes,—such as difference in muscular development and in the force required for particular efforts, as well as in the number and frequency of such efforts,—that it would be impossible to calculate it even approximately. The result, nevertheless, will show that a pressure very much less than that which the abdominal muscles are constantly exercising in the ordinary efforts of defecation, lifting weights, &c., is amply sufficient to annul the elastic resistance of the peritoneum, if concentrated upon a small portion of it, and continuously applied for a period of ten days.

A portion of the membrane, treated as described, was subjected to microscopic examination with a magnifying power of

Fig. 1.—Portion of human peritoneum that had been ten days subjected to an extending force equal to four pounds eight ounces; magnified 222 D.

222 D.; it will be seen by reference to the accompanying cut (Fig. 1), which accurately represents the appearance presented by the specimen examined, that the elastic fibrous element which enters so largely into the composition of the peritoneum is no longer recognizable by the characteristic curling disposition of its fibres, which appear straightened out in the figure, and as incapable of recovering their normal length and disposition. It will be observed, also, that the membrane has undergone considerable attenuation, as evidenced by the sparse arrangement of its fibres.

These changes will be better appreciated by contrast with Fig. 2, which gives the appearance of a portion of fresh peri-

Fig. 2.—Portion of peritoneum of human subject; magnified 222 D.; treated with acetic acid.

toneum simply treated with acetic acid. In order to ascertain whether the immersion in spirit might not have had the effect of dehydrating the tissue, and thereby of destroying its elasticity, independently of the tension to which it had been subjected, a portion that had been kept in spirit forty-eight hours, but not in a state of tension, was examined, and found to present an appearance in no degree different from that repesented in Fig. 2, (See Fig. 3).

Fig. 3.—Portion of human peritoneum, macerated in spirit for forty-eight hours, but not subjected to tension; magnified 222 D.; treated with acetic acid.

Lastly, a portion of an old pendulous hernial sac which had descended quite to the testicle, was examined with the view of ascertaining the condition of its elastic tissue. The appearance presented by the specimen treated with acetic acid is given in Fig. 4. It will be seen that it corresponds pretty closely with that represented in Fig. 1, from the specimen subjected to tension during ten days, with this sole difference, that the latter would appear not to have been so completely as the former deprived of the power of elastic reaction, as shown by the still somewhat tortuous disposition of a few of its fibres.

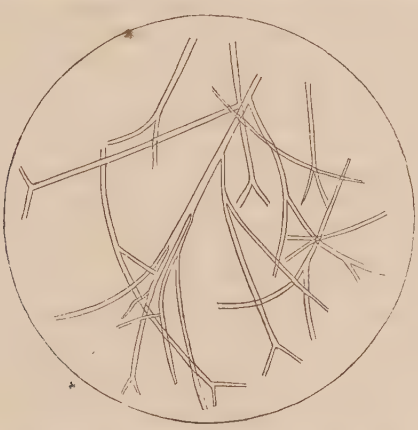

Fig. 4.—Portion of an old hernial sac, macerated in spirit, and treated with acetic acid; magnified 222 D.

When, however, it is borne in mind that the hernial sac had been in the scrotum, probably for several years, as the subject was old, a sufficient explanation of this difference in degree will readily suggest itself.

That the impairment or loss of elasticity in the sac may exercise much influence in determining the general characteristics, as well as the curability of a hernia, is manifest; thus the degree of descent, and the volume of a hernia, are directly related to, and dependent upon, the yielding of the peritoneum.

The readiness with which the viscera descend on the patient's assuming the erect posture, or on coughing, has likewise immediate reference to it; for whilst the sac is capable of any amount of reaction, as in the earlier stages of hernial protrusion, the descent of the viscera is retarded by it, and the rate of progress downwards regulated by the facility with which it yields to pressure. In cases of old hernia, on the contrary, where, from

long continued pressure, the yellow fibrous tissue of the sac has entirely lost its characteristic property,—its fibres being extended, and no longer capable of resuming their original arrangement on the withdrawal of the extending force,—where, in short, the sac is flaccid and pendulous,—it presents no obstacle to the descent of the viscera, which therefore readily gravitate into the scrotum when the patient assumes the erect posture, or calls the abdominal muscles into strong action. The ease with which reduction may be accomplished in hernia of recent formation must likewise be, in some measure, attributable to the aid afforded by the elastic reaction of the sac, and in the *réduction en bloc* of the French, the return of the sac with its contents, if not due to cohesion between them, is entirely attributable to this cause.

The occurrence of abdominal hernia has been attributed, primarily, by Wharton and Morgagni[a], to the yielding and elongation of the mesentery, by which is implied the permanent extension of its elastic tissue. That such a change must have occurred in large and pendulous herniæ will be readily admitted by any one who has witnessed the distance to which the intestines of a subject not affected with hernia are capable of gravitating, on placing the body in the erect posture, after making a flap section of the anterior abdominal wall; in ordinary cases they will be found not to reach a lower level than the symphysis pubis. It would thus appear that those distinguished pathologists fully appreciated the great value of resiliency in the mesentery, as a preventive of hernia; but it is not a little surprising that they should have failed to recognize in the cognate structure of the hernial sac the existence of a similar property, which in it plays an equally important part in resisting protrusion of the viscera.

The curability of hernia is no less intimately associated with the elasticity of the sac, than is the history of its formation. By an extension of the well-known physiological dogma, that permanent dislocation of an organ or structure entails upon it impairment or loss of its normal function or properties, we may conclude that, in the history of disease, displacement of a part from its natural position and relations may exercise much influence in modifying its morbid susceptibilities.

If to the modifying influence of this cause, as regards the hernial sac, we add that arising from the loss of its distinctive pro-

[a] "Quæramque insuper quomodo nisi laxius fuisset (Mesenterium) cum aliquot tenuium intestinorum ulnis potuisset in amplissimam herniam desendere? Certe enim secundum naturam se habens nequit deorsum adeo provenire."—*Morgagni de Sedibus et Causis Morborum per Anatomiam indagatis*, Lib. 3, Epist. 43, c. 13.

perty of elasticity, consequent upon long-continued extension, we can readily understand why a membrane so extremely sensitive as the peritoneum is, and so prone to resent even the slightest injury in its normal condition, should tolerate the amount of rough usage involved in the operation for the radical cure of hernia, according to the various plans of Gerdy, Wützer, and Wood, and that more recently devised by Mr. Syme.

The attempt to effect the radical cure of a *recent* hernia by any of these operative procedures, before the sac had undergone the preparatory changes due to the above-mentioned causes, would therefore be hazardous in the extreme, and totally unjustifiable on this ground alone, independently of the obligation which the surgeon owes his patient, of affording him, in the first instance, the chance of alleviation, if not of cure, by the persevering use of a well-adjusted truss.

Mr. Gay would appear to recognize the change produced by long-continued tension in the physical organization of the sac; he has not, however, given the precise rationale of that change, much less afforded demonstrative evidence of its occurrence.

Mr. Gay says—"With its usual investment of the *fascia propria*, the sac does not frequently form a very strong union; but still it becomes so firmly impacted by the surrounding structures, that it is not easy to be dislodged, and returned into the abdominal cavity. This is more especially the case when the sac, or the greatest portion of it, is formed by an *extension* of the original hernial pouch, and not by a *dragging down* of a fresh portion of the peritoneum. Hence, should the surgeon entertain the idea of returning the hernial sac, after emptying it of its contents, the inquiry should be first made, to which of these two processes it is most likely that the production of the sac is due. If to the former, any attempt to dislodge it would be inconsistent, since the pouch would in no way appertain to the abdominal cavity; but if to the latter, its restoration might be justifiable. The circumstances of its formation and development, together with the space of time that might have elapsed between the period of its original descent and that at which the attention of the surgeon is directed to it, would afford material, if not positive, evidence of the *kind* of hernial sac which a given rupture might possess. Thus, in a suddenly formed and small hernia, the sac would be peritoneal, and belong to the abdominal cavity; and if the means are effectively used to prevent its increase in size, it would still remain so. But if its formation be slow, and its increase in bulk be due to the want of proper precautions, the sac in all probability will be a *new structure*,

and have no relation to the abdomen but that of continuity with its peritoneal lining"[a].

I fully concur with Mr. Gay in thinking that the attempt to reduce the hernial sac, under the circumstances stated, would be "inconsistent;" nay more, I believe it would be positively dangerous, if successful,—because such a sac, for the reasons already given, must possess only the most remote affinity to the peritoneum, and would in all probability act as a foreign body in the abdomen.

Art.—XI.—*Some Practical Observations on the timely Use of the Obstetric Forceps.* By Edward B. Sinclair, A. M., M D., T.C.D.; Fellow and Censor of the King and Queen's College of Physicians in Ireland; Ex-Assistant Physician to the Dublin Lying-in Hospital, &c.

There can be little doubt but that after the secret (which the Chamberlens so long and so ungenerously guarded) came to light, the practice of obstetrics underwent a complete revolution.

No greater blessing was ever accorded to parturient woman than the midwifery forceps: discovered and used by the Chamberlens, in 1647, retained a secret by its originators, and lying dormant over a period of eighty years, it has now for upwards of one hundred (as from time to time its use became more and more general, and its form better adapted for its end), been the means of saving more human life than any other surgical invention for a similar period

One would suppose that, after so long an experience of this instrument, the professional mind ought to be sufficiently certain as to the indications for its use, and the period of labour at which it should be had recourse to. Not so, however; amongst obstetricians of the present day, these topics still form subjects for warm controversy; though recently, I am happy to say, we of the Irish school are beginning to have more rational and more uniform views on these questions than heretofore.

It has been said by a high authority, that, "in every case of midwifery, the chief object to be attained by the practitioner should be, the preservation of the *lives* of both mother and child committed to his care;" and this has formed the basis of treatment in all cases of labour. Now, though I thoroughly concur in the above rule, yet I do not consider it without fault;

[a] On Femoral Rupture, its Anatomy, Pathology, and Surgery, by John Gay. London: 1848.

it does not go far enough, in my opinion. I conceive its great author would have been more judicious, had he defined the chief object of the obstetric practitioner to be, the preservation of *the structures of both mother and child, and the prevention of fever and inflammation* during and after parturition. Acting on this dictum it would be found, that the lives committed to his charge, especially that of the mother, would seldom be placed in jeopardy. The former dictum has given rise to what may be called the expectant line of practice in obstetrics, which, however judiciously employed, has, generally speaking, been carried too far. Too great a reliance on the powers of nature, albeit the lives of mother and child may have been preserved *at the time*, has often given rise to occurrences which have rendered the post-partum state not only dangerous and protracted, but fatal; or, what is as bad, has caused the life of the woman, so saved, to be a burden to her. Therefore let us look, not to the preservation of life merely during parturition, when conducting a labour, but to the conservation of the tissues, and the prevention of inflammation. Then life will follow as a matter of course, and that unclouded by any permanent defect.

For many years a portion of the Dublin school of midwifery, in conjunction with some members of that of England, and also of Scotland, have manfully struggled against, what I fear I must designate, the narrow prejudice of some of the heads of the profession, in endeavouring to establish a more rational practice with respect to the application of the forceps. In our school I could mention a goodly list of gladiators, and amongst them would stand conspicuous those of the elder Beatty, his son the present eminent obstetric practitioner, Evory Kennedy, Shekleton, and Churchill; several equally eminent gentlemen from the sister countries I could also enumerate, did space permit. But it is no matter of surprise to me that practitioners should have been guilty of errors of omission with regard to the application of this instrument, when I review the rules laid down for their guidance. Some of these I shall take the liberty of quoting; premising, that so highly did their authors stand in the estimation of the profession, their word was considered almost a law. And it must be also observed that their dicta, as will appear, were uttered with the greatest solemnity and precision; yet, notwithstanding, they are frequently found with equal solemnity contradicting themselves.

Dr. Collins, one of the former Masters of the Dublin Lying-in Hospital, thus writes:—"Let it be carefully recollected that, so long as the head advances, *ever so slowly*, the patient's

pulse continues good, the abdomen free from pain on pressure, and there is no obstruction to the removal of the urine, interference" (that is, of any kind) "should not be attempted, unless the child be dead." Now, from this we must infer that the state which is the converse of the above, viz., where, amongst other matters, the symptoms of inflammation, indicated by quick pulse and tenderness on pressure, *are* present, we should use the forceps. But, in all likelihood, the life of the child shall then, indeed, be found extinct; so that this rule would ignore the forceps altogether, and turn cases which might have terminated happily into craniotomies. Again, prior to interference with the forceps, "the head of the child shall have rested for six hours as low as the perineum, though the pains have already ceased." Therefore, if the pains continue so that the presentation advances ever so slowly, we should not use the forceps; and though the pains or uterine action may have ceased for more than five hours, the head making no advance whatever, the practitioner is not to interfere with this instrument.

Dr. Murphy, late Assistant-Physician to the Dublin Lying-in Hospital, and at present Professor of Obstetric Medicine in the University of London, gives very nearly the same advice. "It appears to me," he says, "that four hours would be quite sufficient to allow the head to remain in the same position to authorize your interference." These last two recommendations show that the eminent gentlemen who put them forward considered the question merely one of time, apparently forgetting that the powers of endurance are not equal with all women—that some could bear with impunity, for many hours, what would kill others to endure for one. How uncertain, how unsafe, then, are such precepts!

The rules of practice above quoted evidently originated from the axiom of Denman (who may justly be called the father of British obstetric medicine), as follows:—"It is meant, when the forceps are used, to supply with them the insufficiency or want of labour pains; but *so long as the pains continue*, we have *reason to hope* they will produce their effect, *and shall be justified in waiting*."

Again, it has been taught that "when the pulse becomes quick, the tongue dry, the discharges foul, and the mother's parts hot and swollen," the time has arrived for the application of the forceps. In other words, this teaching directs that the forceps, which I assert should be used for the purpose of *preventing* the occurrence of inflammation, ought not to be had re-

course to till *that inflammation has set in.* Dr. Ramsbotham's teaching goes far beyond this, and tends to ignore altogether the effectual application of the forceps. He tells us, "if the pains are subsiding gradually, or have entirely disappeared; if the strength is failing, the spirit sinking, the countenance becoming anxious; if the pulse be 120, 130, 140 in the minute; the tongue coated with white slime, or dry, brown, and ropy; if there have been two or three rigors; if, on pressing the abdomen, there is *great* tenderness of the uterus; if there be green discharge; if there be preternatural soreness of the vulva, with heat and tumefaction of the vagina; if the *head have been locked for four hours, and made no progress for six or eight hours; if the patient be vomiting a dark, coffee-ground-like matter; if there be hurried breathing, delirium, or coldness of the extremities, then* we are warranted in having recourse to the forceps, although the labour has not lasted the limited period of twenty-four hours, or even twelve:" he adds, however, "and we should be acting injudiciously(!) to allow the case to proceed until the last four symptoms appear without relief being afforded."

Omitting, then, the last four symptoms, it seems to me, as I dare say it has appeared to many a junior practitioner, that, according to Dr. Ramsbotham, not until the parturient woman exhibits to her attendant impending dissolution, should he use the forceps; but that he is not to wait for the occurrence of the last four symptoms, indicating that she is absolutely in *articulo mortis.* Still more adding to the perplexity of those who may consult this author for information as to the period when the forceps is applicable, we find him, in another place, telling us emphatically to use it without loss of time; for, says he, "*bear in mind* that more injury may accrue from too long delay than arise from premature assistance!" Strange doctrine after his prior advice! I could multiply quotations, did space permit, tending to show the uncertainty of the teaching of authors on this question; and the perplexity and fear that must, consequently, have arisen amongst the mass of practitioners, concerning the operation of delivery with the forceps. Suffice it to add one more.

Dr. William Osborne, in his "Essays," informs us—"All the powers of life are exhausted, all capacity for further exertion at an end, and the mind as much depressed as the body; they would at length sink together under the influence of such continued but unavailing struggles, unless rescued from it by means of art:"—that means being the forceps. How truly does Dr. Burns say—"that the disciples of the school of pa-

tience carry their fears of the mischief resulting from the use of the forceps to an extravagant length, and place a mistaken confidence in the efficacy and safety of a continued action of the expulsive powers;" and how correct is the observation of our latest authority on this operation, Dr. Churchill, who writes as follows:—"It must be admitted that, until lately, we have been too much afraid of the forceps, and have allowed cases to become subjects of craniotomy, which, at an earlier period, might have been safely delivered with the forceps."

It would, indeed, appear that until very lately the general tendency of obstetric teachers, especially in this city, was not to teach the use of the forceps, but its abuse. With few exceptions, they shrouded this instrument with such suspicion and horror, that practitioners were deterred from availing themselves of it. The difficulties and dangers attending the use of the instrument were ever brought prominently forward, to an exaggerated degree; while the facility of its application and the safety of its action were kept completely in the back-ground. I have no doubt, entertaining as I do the highest respect for the eminent physicians, that those who thus taught in this city were actuated by the purest motives—that they thus taught with a laudable desire of preventing as much as possible the origin of a system of "meddlesome midwifery." But it is much to be feared, that, running to extremes with their views, a great loss of life and comfort was the result; not so evident, however, in private practice, as in hospitals and charitable lying-in institutions, where the physician meets a greater amount of ill-health and general constitutional delicacy. The rule till recently was, to postpone the operation as long as possible—not to act till those symptoms occurred, the advent of which should have been rendered impossible. Life, certainly, was often preserved; but the operation was performed too late to hinder subsequent inflammatory action of the mother's tissues, and all the dangers attendant thereon. I well remember listening to Dr. Churchill's eminent predecessor, picturing in his usual powerful language the dangers and difficulties of forceps delivery. So terrible a picture did he portray, that just after having heard him lecture on the subject, I would rather have attempted to tie the abdominal aorta than use the midwifery forceps. But a short time since all lacerations, fistulæ, and cicatrices were laid at the door of instruments; while the fact of the head having continued to press for a long time in one fixed situation was never taken into account. It was thus that, when a vesico-vaginal fistula arrived in this city from the country,

we have so often heard the following story:—The patient was a long time in labour; a dispensary doctor was called in, and he used the forceps. Well, here was a forceps delivery, and the woman has got a vesico-vaginal fistula; so the forceps caused the inflammation, which resulted in sloughing and fistula. But the long labour was not taken into consideration. That the results of inflammation from prolonged pressure of the head in one position is sometimes unjustly attributed to the use of instruments, I shall mention the following circumstance to illustrate; and though this anecdote relates to the perforator, still, on consideration of the facts, it will be found more applicable than did it refer to the forceps.

A little better than two years since, I was requested by the medical attendant of a large public institution to visit a woman there in labour. Upon inquiry, I found she had suffered strong uterine action for more than thirty hours. When I saw her, the tongue was dry and brown, the pulse quick; there was much thirst: the parts were hot, swollen and tender; a fetid olive-coloured discharge flowed from the vulva; the perineum was partially distended by a large scalp tumour, and was absolutely at the moment in a state of inflammation. The head of the child was completely impacted —not even a flat catheter could be introduced into the bladder (which fortunately was not very full), neither was there room to have insinuated its beak at any point between the fœtal head and the pelvis. The fœtal heart could not be heard. Of course I perforated at once, and as soon as I had evacuated the contents of the cranium as completely as possible with the crotchet, I removed that instrument, and by means of my fingers hooked through the cranial opening, with the utmost possible ease I completed the delivery, which did not take twenty minutes from first to last. I left directions, amongst others, for treating the inflamed parts, and put the nurse on the *qui vive* for sloughing. The gentleman for whom I acted took up the case, and the next day I heard the poor woman was going on as well as could be expected. I may here remark, she ultimately recovered, without any serious inconvenience. Some days, however, after this operation, I met a gentleman who occupies an important post in one of our large medical hospitals; he laughingly informed me, in a manner not to be mistaken, that he had seen a patient of mine with "*sloughing after instrumental delivery.*" This gentleman had been asked, by the one for whom I had previously acted, to take his duty for a day or two, soon after I had operated; saw this midwifery case amongst others; heard that I had used instruments,—and at once connected the

sloughing with the instruments; never considering that even *though instruments had been used, the sloughing might have been caused by long pressure of the head.* I do not think I ever convinced him that I was not to blame for the results. Yet here *no instrument had touched the mother's parts;* and the head, after it had been lessened, passed through them so readily as to require the hooked finger only to extract it. I could relate many such anecdotes as this. Now, if persons would only consider the parts of the mother which generally come in contact with the forceps during delivery—if they recollected that the blades were adjusted in an obliquely lateral position; that they were more or less transverse, as regards the pelvic space of the mother; that they are very seldom put on antero-posteriorly, the only position in which they could exercise direct pressure on the urethra; could they be convinced that, when adjusted in this latter position, the site of the urethra would correspond to the fenestrum of the pubic blade; that the only portion of that blade which could ever come in contact with the urethral portion of the vagina, was the beak, and that this beak pressed it only during the application of the instrument and during extraction of the head; that its pressure was very transitory, and that this transitory pressure was exerted *all along the course of the urethra, and not at one point more than another*—they would not, I can scarcely think, charge the forceps so often with the crime of vesico-vaginal fistula. I firmly maintain, that in careful hands, no injury can be inflicted by this instrument either upon mother or child. But the subjects concerning which I wish chiefly to comment, in connexion with this instrument, are the *post-partum* conditions of the lying-in woman.

Firstly, then, I contend that the early application of the forceps prevents inflammation of the mother's tissues, and its results.

Secondly, That the free and timely use of this instrument is a powerful means for warding off disease and death, especially in public obstetric institutions.

With respect to the first assertion, I regret it is not in my power to offer any statistics relative to sloughing of the vagina from authors who are hostile to the free use of the forceps, And it is a curious fact, that some of these very authors *have* published obstetric statistics, and yet are silent upon this subject; they give no account of their cases of sloughing. I can, however, produce the statistics of a gentleman upon this point, who at one period used the forceps most freely. And premising

that the majority of the cases of sloughing occurred during a period when this physician was still prejudiced by old and respected opinions, I think it will be considered, when I have exhibited the figures, that not only is the forceps guiltless of the charges laid against it, but also that there was an extraordinary immunity from sloughing of the soft parts of the mother, during Dr. Shekleton's mastership of the Dublin Lying-in Hospital, and that in consequence of the free use of this instrument. I can answer for the truth of the statistics I produce, they having been published by myself and Dr. George Johnston, in our report of Dr. Shekleton's mastership, and all the facts having been registered at the moment of their occurrence.

Out of 13,748 deliveries of every description (225 of which were delivered with the forceps), there occurred but 20 cases of sloughing (more or less) of the soft parts; 7 of these happened in deformed pelves after perforation and crotchet delivery; 5 occurred in tedious labours, where no instruments had been used; 2 in prolapse of funis, and 1 in retained placenta; in neither of which the forceps was used, but they were subsequently seized with erysipelas, sloughing, and died—or, fifteen cases of sloughing, in which the forceps had not been used; leaving 5 cases only which occurred after forceps delivery—three of these latter were in single births, out of 200 such forceps cases, all slight, and after long labour: these recovered. There were two instances in twin-forceps-labours, in both after long delay, and one of these died.

Out of 13,748 deliveries, there were only four examples of urethro-vaginal fistula after convalescence; 2 of which completely closed; 1 contracted to a minute opening; and in one instance the woman died, subsequently, of peritonitis.

But had the forceps been used more freely, and much more early, in the first periods of Dr. Shekleton's mastership, I am almost certain that the 5 cases which occurred in tedious labour, when instruments had not been used, and the 5 which occurred under the head of forceps deliveries, would not have been recorded.

That the free and timely use of the forceps is a powerful means of warding off disease and death, especially in public obstetric institutions, I think I can produce strong reasons for maintaining.

Burns, when speaking of the effect of delay in labour, says, "There is a strong disposition given to puerperal diseases, not merely to those troublesome though less dangerous complaints

known under the name of weids or irregular febrile paroxysms, but also to more formidable affections of an inflammatory nature, especially of the womb and peritonitis; accordingly, we find that a much larger proportion of women die after protracted than after natural labour." This has been corroborated in an elaborate dissertation, by Dr. Simpson, of Edinburgh; and I believe no one will have the hardihood to contradict it. Lessen, then, the number of tedious cases, and it follows that the practitioner shall have a cleaner bill of health, and the minimum of mortality.

To illustrate this, I shall again consult the statistics of the Dublin Lying-in Hospital; and, for the purpose of more fully proving my position, I shall divide Dr. Shekleton's mastership into three periods:—Namely, the 1st, during the months of Nov. and Dec., 1847; 2nd, during the years 1848 and 1849; and 3rd, from Jan., 1850, to Nov., 1854. I have made this division, because during the first period the forceps was not used at all; during the second, prejudice was merely commencing to yield to common sense; and at the commencement of the five last years, the necessity of the early application of the forceps was fully appreciated.

Now, comparing the number of deaths with that of the deliveries and the ratio of forceps cases, during each period, I find the following to be the results:—

During November and December, 1847, there were 242 deliveries, and as many as 17 deaths (to say nothing of cases of disease), that is, 1 in about every 14 women delivered died: there was no forceps delivery. During 1848–49, there were 3886 deliveries, and but 70 deaths, from all causes, or 1 in about 55 of those delivered; and the forceps, during this period, was used 38 times, or once in every 108th case. And during the years 1850 to November, 1854, there occurred 9620 deliveries, of which but 78 died, from all causes, or 1 in every 123, nearly 124; and the forceps was used 187 times, or once in about every 50th case. And were those deaths taken into account only which had originated from puerperal causes, the absolute puerperal mortality would have been 1 in about 350 of those delivered.

Comparing the ratio of disease with that of forceps deliveries, and confining ourselves merely to such seizures as may come under the term puerperal fever, I find the following to be the results during these three epochs:—

During the two months of 1847, puerperal fever was rife, Dr. Shekleton having received charge of the hospital during

an epidemic; and all the cases of illness might have been included under that head. This state of the house first induced Dr. Shekleton to lessen his second stages, and was the means of bringing forward the forceps. But during the years 1848–49, when the forceps was used once in every 108 cases, puerperal fever and its allies were in the ratio of 1 to every 54 of those delivered; the numbers being 72 cases of puerperal fever out of 3886 deliveries; whereas, during the last five years, when there were 9620 deliveries, and the forceps was used once in every 50th case, puerperal fever and its allied affections were as low as 1 in every 104 of those confined,—the examples of these affections amounting only to 47.

As I have spoken of the uncertainty of the rules laid down for the guidance of the practitioner as to the application of the forceps, it may naturally be expected that I should attempt to remove the difficulty, I cannot then do better than present the rules which guided us in our practice during the latter portion of Dr. Shekleton's mastership of the Dublin Lying-in Hospital. These were pretty nearly as follows:—

Time was never taken so much into consideration as the existing state of the woman's constitution, and that of the child's circulation. No system of axioms was laid down defining precisely time and circumstances. The *peculiar nature of each case*, alone, formed the basis or ground of action. But if we *had any axiom upon which we acted, it was this, and this only*—"*in doubtful cases, and where the application was not difficult, the error was on the right side to deliver with the forceps.*" We never waited for bad symptoms to set in;—experience had taught us to discriminate the cases in which unpleasant symptoms *might be apprehended;* and if we did apprehend them, the labour was cut short without hesitation. If we found the fœtal heart about to fail after ergot, or otherwise, we used the forceps at once. We never perforated without first trying to extract the fœtus by the forceps; and we have successfully used it in slight narrowing of the pelvis. We never required to feel the child's ear, deeming it of no utility whatever; as I have elsewhere observed, it was not felt in the majority of our cases. The above practice is, to a certain extent, corroborated by Dr. Churchill, who, in the last edition of his Practical Midwifery, remarks—"There are many cases in which, from the character of the labour, it may be certainly foreseen that *these symptoms* (alluding to those which practitioners were formerly in the habit of *waiting* for) will arise, and that the woman will not *previously* deliver herself. In all such cases, I would maintain that the forceps should be used as soon as we feel justified in

coming to that conclusion." I may safely add, that acting thus, should we have been subsequently found to have erred, the mistake shall be on the right side. I emphatically assert, and I have had opportunities of forming an opinion, that no harm at least can result in thus acting; that much life will be saved, and much suffering spared to parturient women.

Art. XII.—*Observations on the Treatment of Rheumatic Fever.* By R. W. O'Donovan, M. D., K. & Q. C. P., Belturbet.

In my former Paper on the treatment of acute rheumatism, I advocated the use of opium, in large and often repeated doses, as the "modus curandi" best calculated to relieve this distressing malady, not as a therapeutic agent of theretofore unknown or unproved power. Having slightly referred to the history of the use of opium in this disease, so far as my means of reference permitted me, which in a country residence are necessarily limited, and mentioned the names of Corrigan and Cazenave, I received an interesting letter from Dr. Thompson, of London, which, in justice to him, I take the liberty of inserting, premising that I have not had an opportunity of reading the article to which he has referred me.

"My dear Sir,—A paper written by you, in the last number of the 'Dublin Quarterly,' lately came under my observation, and I read it with much pleasure. The subject appears to me of great practical importance, and I am glad to see it attracting the attention of the active minds of Ireland. I read a paper on the value of opium in rheumatism, and the circumstances which should regulate its employment, to the Medical Section of the British Association for the Advancement of Science, at Plymouth, in the year 1841: an abstract of the paper was published in the Report on Transactions of Sections, p. 79 of the volume for that year. I take the liberty of referring you to that paper, because I think you will be interested by my notice of the views of Heberden, the practice of De la Roche, recorded in the 'Edinburgh Medical and Surgical Journal,' at the commencement of this century, and the subsequent disuse of the practice until revived, although as yet very partially, by the instructive remarks of Dr. Corrigan, and, I may add, by my own experiments. I hope you will persevere in your therapeutical investigations, and in publishing the results.

"I am, dear Sir,

"Faithfully yours,

"Theophilus Thompson."

Some instructive cases of rheumatic fever have come under my care since the publication of my first paper in the pages of the "Quarterly," which have forced me to reconsider the question of the paramount value I attached to the treatment there advocated, and to ask myself whether opium is a safe medicine in all cases—whether, from constitutional causes or complications, its use may not be absolutely injudicious or hurtful; and, if so, to consider the more difficult subject of diagnosis.

The first case I shall quote, Mrs. F., suffering from muscular rheumatism for some time, was suddenly attacked with rheumatic ophthalmia on the 25th June, 1858. She consulted me on the 27th. The affection was confined to the right eye, which presented a perfect specimen of the disease. She suffered intense pain, increased at night, in the eye, orbit, temple, and eyebrow; the blood-vessels running in pink lines from the circumference to the iris, which was cloudy. Ordered compound powder of jalap, to free the alimentary canal; a grain of opium every third hour; opiate fomentations to the eye (1 drachm of opium infused in 16 oz. of boiling water).

28th. All symptoms relieved.

29th. Quite well; had no relapse.

Here the almost magic influence of the opiate treatment was very apparent.

About this time I read an interesting case recorded by Dr. Campbell in the "Dublin Hospital Gazette," where the iodide of potassium, in unusually large doses, was administered successfully in a case of well-marked rheumatic fever. I had an opportunity of testing its value in the following case:—

Denis Fitzpatrick, aged 50, ill six days; right shoulder, elbow, and wrist red, swollen, and excessively painful; left wrist and back of hand swollen and painful, but not red; great dejection of spirits, believing he was attacked with paralysis; some cough and dyspnœa of old standing; sounds of heart normal; dry, bronchial râles over both sides of the chest; profuse perspiration; skin hot; urine scanty and loaded; bowels confined; pulse 100; starts in his sleep. Ordered a mercurial aperient, blister to his chest, and a diuretic mixture of the acetate of potash and nitrate of potash.

16th June, 1858. Copious offensive motions; urine more abundant; no improvement in general state.

18th. Pains and other rheumatic symptoms continue very severe. Ordered 10 grains of the iodide of potassium three times a day.

20th. Rheumatic pains much relieved, but he spent a bad night, from severe abdominal and epigastric pains, with tenesmus and bloody stools; an eruption resembling measles, but rather more elevated, has appeared over the entire body and extremities; tongue red at tip and edges, with a tendency to brown in the centre; pulse 120, very feeble. Omit the iodide of potassium. To get 4 oz. castor-oil, and 40 minims tincture of opium; a mustard poultice to epigastrium; beef-tea, weak brandy and water, arrow-root.

21st. Much better in every respect. To repeat the oil and tincture of opium draught.

22nd. The joints became again red, painful, and swollen during the night, but all abdominal pain and uneasiness is gone; to get a grain of opium every second hour, and opiate fomentations to the parts affected.

25th. All pain and swelling is gone; to get quina, a grain of opium at night, and a mild castor-oil draught; did not relapse.

May 11th, 1859. Was called in to visit Mrs. M'M., a young married woman, without family, of dark bilious countenance; for the previous two days complained of general febrile pain, headache and lassitude, with cough and pain in the chest; ordered compound powder of jalap, a diaphoretic mixture, and blister to her chest.

17th. Profuse perspiration set in during the night, but without affording her relief; on the contrary, her right knee, elbow, and wrist have become red, swollen, and painful; in fact, acute rheumatic fever has developed itself; her bowels have been but slightly acted on, and urine scanty; ordered opium and camomile fomentations; powder to be repeated, and to continue her mixture, with sweet spirits of nitre.

18th. Same report, but medicine freed the bowels well; ordered two grains of opium every third hour.

19th. Sent for three times this day; Mrs. M'M. spent a bad night; delirious, in great suffering from the affected joints; towards morning her stomach became affected, frequent vomiting, with pain at epigastrium, extending over hepatic region; bathed in profuse perspiration; tongue dry, with yellow fur; countenance sunken and muddy; eyes blood-shot, partial stupor; omit opium; to get blue pill, followed by a seidlitz powder, seltzer water to drink, and to blister epigastrium.

20th. Looks much better, and says she feels so; she voided in large quantity dark offensive bilious stools; urine much increased in quantity; skin cooler, and perspiration not so severe; repeat blue pill and draught; continue fomentations.

21st. General state much improved, including alvine excretions, but the rheumatic pains continue severe; she has had little or no sleep, but does not start when she sleeps; ordered the opium pills again.

22nd. Train of symptoms present on the 19th again present themselves; sunken countenance, delirium, nausea, and small pulse; ordered the same treatment, and to omit the opium; to get a small quantity of wine in her effervescing draught.

23rd. Is much improved this morning, but is very weak; to get beef-tea, arrow-root, and wine; prescribed iodide of potassium in four-grain doses, three times a day; the joints to be rubbed with a stimulating liniment, and bandaged with flannel saturated with sulphur. The remainder of the case is not sufficiently interesting to be quoted in detail; Mrs. M'M. improved slowly, and was convalescent about the 1st of June. I was called to see her again on the 10th. My patient, having most imprudently sat at an open window for a considerable time, was attacked with shivering on going to bed, and a second invasion of acute rheumatism was ushered in with the local symptoms, attacking the right knee and shoulder; I ordered her blue pill, followed by an aperient daught; and when the bowels were well moved, to take two grains of opium every third hour.

11th. At nine o'clock on the previous night she took her opium pills; at midnight they were repeated, but the administration of the drug was followed by the same bad effects, stupor, nausea, mental depression, and a peculiar expression of fatigue in her countenance; opium omitted; saline effervescing draught; ordered opiate fomentations to the affected parts. It is unnecessary to follow in detail the treatment of this case; it was very tedious; the medicine chiefly employed was the iodide of potassium, and, towards the close of the case, sulphate of quina; my patient was able to walk about with the assistance of a stick about the middle of July; she has since enjoyed good health.

March 6th, 1861. I was called to see a young girl, aged 20, a bonnet-maker, of sedentary habits, pale, phlegmatic countenance, with very dark "areolæ" about the eyes. She was suffering from a very violent attack of acute rheumatism, and was ill five days previous to my visit, and was so helpless that both herself and her friends (as in Fitzpatrick's case) were under the impression she was paralysed; all the large joints of the upper and lower extremities were swollen and exquisitely painful, but not very red; she could neither turn in the bed,

nor assist herself in any manner, and her screams, when any person approached her, could be heard in the streets; her bowels have been moved, discharges offensive, urine scanty, perspiration excessive; tongue soft, moist, and nearly clean; ordered a mercurial purgative ; a warm opiate liniment to be rubbed to the affected parts.

17th. Alvine discharges less offensive; there is no change in her general symptoms; she has not slept for several days and nights; pulse 110, and small; to get two grains of opium every third hour; continue fomentations.

18th. Had some trifling disturbed sleep during the night; had taken eight grains of opium; feels weary, and complains of headach, with some slight stupor; tongue dry, and slightly furred; local symptoms unchanged; omit opium; to have a mixture of nitrate and acetate of potash; no alteration in her diet, which consists of arrow-root, toast and tea, and any mild drink she calls for ; to get blue pill, and senna draught.

19th. Had some trifling sleep; bowels freely moved; to recommence opium, and continue mixture.

20th. Was called at 4 o'clock in the morning; took six grains of opium, and fell into a troubled sleep in the early part of the night, but about one o'clock she was attacked with pericarditis, great difficulty of breathing, with violent heaving of the chest, tumultuous action of the heart, loud bellows' murmur; pulse 130; steaming in perspiration; haggard expression of countenance; abdomen swollen, tympanitic, and painful; great depression of spirits, being firmly convinced she was dying; swelling and pain in joints persistent; ordered blister to cardiac region; sinapism over abdomen, aromatic spirit of ammonia ; omit opium ; to get 8 grains of iodide of potassium every fourth hour.

10 o'clock, A.M. Got 16 grains of the iodide; all the dangerous symptoms are relieved.

21st. Had some refreshing sleep last night, and says she feels better; breathing quieter; palpitations less distressing; perspiration decreased; urine considerably increased in quantity; local pain much relieved.

22nd. Continue.

23d. Improving steadily; increased desire for food; the patient continued to improve ; she was gradually allowed more nutritious diet, with some bottled porter, which agreed very well with her; and on the 30th she was able to walk about the room; but she continued to take the iodide of potassium in 4 grain doses for four or five months; had repeated small blisters put over the heart. I examined this patient a few weeks past

(March, 1861); she suffers from palpitation on running upstairs, or when excited, and the "Bruit de soufflet" is audible, but with much less force.

April 20th, 1860. I visited Mr L. A few days previous he was attacked with pain in his right knee, when walking in his farm, complaining, at the same time, of having caught cold. Mr. L. is a gentleman of extreme scorbutic diathesis, and of excitable, weak habit. The pain in the knee increasing, and the right wrist becoming swollen and painful, with muscular pains in the shoulder, he consulted me; I found his pulse weak, 100; tongue furred; skin hot and clammy; bowels extremely fetid; urine very scanty, not more than 4 ounces in the twenty-four hours, with dark brown deposit; ordered grey powder and rhubarb, with bitartrate of potash; camomile fomentation, and, as he had not slept, one grain of opium at night.

21st. Alvine discharges dark, but not so fetid; no change in urine; had a bad night, no sleep; complains of headach, and says he had troubled dreams all night; joints rather more swelled, but little increased in colour; pain very great; to get a mixture of acetate and nitrate of potash; repeat aperient powder; to have two grains of opium at night.

22nd. No sleep, but complains of headach and nausea; tongue furred and dry; a sanious mucus about the gums and corners of the mouth; perspirations distressing; alvine discharges very offensive and dark; urine as before, with a heavier deposit, when stired up it looks like dirty porter, with an offensive odour; he drew my attention to some spots on his limbs, and I found a large crop of "purpura" on both lower extremities, particularly on the inside of the left thigh, where they were exceedingly numerous, scattered sparsely over the abdomen and back; pulse very weak, and great dejection of mind; ordered lemonade *ad libitum*, a desert-spoonful of lemon-juice every third hour; continue his potash mixture, and omit opium; to get some beef-tea, jellied with arrowroot and port-wine, which he prefers.

23rd. Improved; he has drank the juice of three lemons since yesterday; tongue and mouth generally cleaner; urine increased in quantity, but the deposit apparently as great, presenting the appearance of broken-down blood-fibre; perspirations much less; pain and swelling of the joints much relieved; wine agrees with him, the best test, *he says he likes it.*

24th. Mr. L. is improving steadily; urine increasing in quantity, and deposit becoming less; blood-spots becoming less perceptible; got some refreshing sleep; appetite improving.

May 1. Mr. L. is able to sit in his chair; rheumatism is gone; and the constitutional affection, though leaving considerable debility, has also disappeared; he takes the muriated tincture of iron, and continues his lemon-juice.

A careful perusal of these cases must, I think, lead to the conclusion, that in one, Mrs. F., the opiate treatment was attended with the best possible results, the speedy and perfect cure of the disease, which should be the legitimate object of the physician, and not the support of the empiric character of a drug "*per fas aut nefas*," as unfortunately often happens; the same careful consideration must bring the conviction that in the other cases opium not only did not produce a beneficial effect, but induced a train of symptoms of a highly aggravated and dangerous character. Are we, then, in a position to say *a priori* when it should be prescribed, and when avoided? are there positive and established diagnostic marks to guide the practitioner in its use? or must we continue to prescribe it at hazard, either as the *chief remedial agent*, or *as a valuable assistant?* That there is no want of valuable medicines to meet every difficulty may be granted, but the grounds for a judicious selection remain as yet unproved. I know not whether the study of cases 3, 4, 5, may produce in the minds of others the same effect which it has produced in mine, viz., the inapplicability of opium as an *unerring medicine* in the curative treatment of acute rheumatism. What are the physiological and diagnostic characters which should make us hesitate in its administration? Can those cases throw any light on them? We observe Nos. 3 and 4 patients were females; and I may draw attention to the case of Mrs. R. in my former paper, where the usual beneficial effects of the medicine were not as striking or well developed as in the remainder. Is there any peculiarity in the female constitution when attacked with rheumatic fever, contra-indicating the use of opium? The practical physician often finds it his sole hope in painful uterine affections, in neuralgia of the spine, uterine hemorrhages, &c., where it is well tolerated in large doses—and only in large doses—such, at least, is my own experience. I think it worthy of observation that each of those three female patients were of that temperament marked by a sallow complexion, dark areolæ about the eyes, bushy brows, and heavy eye-lids, and constipated *habit of body*—a class in which the vital functions appear always to be slowly performed, and where there is a deficiency of red blood, either as a cause or effect; in those patients (one

unmarried) opium was badly borne; and if persisted in would, I feel, lead to a fatal termination; at least, my conviction is so strong that I would not, under similar circumstances again prescribe it. Can we now say there is a class of patients in which opium must not be given,—that its use will be followed by serious disturbances of the function of the liver, of the cerebrum, and heart, unaccompanied by relief to the specific disease. It may indeed be considered too serious a conclusion to arrive at from such premises; but I may presume to say, they offer to a certain extent a starting-point for future and serious observations and reflections. The curative power of lemon-juice in the treatment of Mr. L.'s illness was very marked; with him, also, opium was badly borne. Of lemon-juice as a medicine in rheumatic fever I have no experience further than the individual case reported; but I am disposed to consider it a valuable therapeutic agent, when such a constitutional complication exists, and that it may exist much oftener than is supposed I strongly suspect.

I believe the iodide of potassium in large doses (but not to a poisonous extent) is a powerful and valuable medicine in acute rhematism; it is one I should be much disposed to rely on when the liver is sluggish, and where the functions of the heart are likely to be impaired by fibrinous deposit. I shall conclude this paper with a remark on the use of stimulants: as a general rule, I do not think brandy or wine is ever required, and it is astonishing how rapidly a patient regains strength on the subsidence of pain and the return of sleep; yet cases unquestionably call for their exhibition, particularly when any constitutional complication of a debilitating tendency co-exists.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Diphtheria: *its Symptoms and Treatment.* By WILLIAM JENNER, M.D., Special Professor of Clinical Medicine, University College; Physician to University College Hospital, the Hospital for Sick Children, &c. London: Walton and Maberly. 1860. Fcap. 8vo, pp. 107.

THIS little volume consists of two lectures, with some important additions, originally delivered by Dr. Jenner to the medical clinical class at University College Hospital; and forms a truly valuable addition to the literature of clinical medicine, giving the impressions produced on the mind of an able physician and skilful observer, who had seen most of the severe phases of the recent epidemic of diphtheria in London.

This epidemic commenced in London about five years ago. Since the early part of 1858, Dr Jenner saw about fifty-eight cases of the disease, of which thirty-four proved fatal: this, however, he does not regard as a true statement of the fatality of the disease, as a majority of the cases came under his observation solely because of their extreme gravity, many of them being in a dying state.

As in the other acute specific diseases, so in diphtheria, the general or local symptoms may predominate, and give its special feature to the case. The patient may die from the severity of the general disease, or from some of its local consequences. In this respect, the author remarks, diphtheria bears a closer resemblance to typhoid fever, than to any of the other acute specific diseases; for in typhoid fever the patient may die of the general affection, *i. e.*, of the fever; or, the symptoms of the general disease being trifling in the extreme, he may die of a local consequence of the disease, *e. g.*, perforation of the bowel: so, in diphtheria, death may ensue from the fever accompanying

it, or from the extension to the larynx, trachea, and bronchi, of the peculiar membrane from which the disease gets its name.

In describing this membrane, Dr. Jenner uses the general term *lymph*, but includes under this word a variety of very different-looking substances: sometimes the lymph has a granular appearance, and very little consistence, or tenacity; sometimes the part is covered with a thinner or thicker coating of a white or grey pulpy substance. So thin, soft, and separated from each other, may be the little particles which together form the coating of the lymph, that we cannot apply to it, correctly at least, the term membrane, for no shred of lymph can be stripped from the surface. At other times the layer of lymph is very tough, elastic, and as much as one-eighth of an inch in thickness. In the one case, the lymph resembles cream in appearance and consistence, in the other it resembles wash-leather. Between the two extremes, all intermediate conditions as regards tenacity and consistence are met with.

Soon after the outbreak of the epidemic, it was suggested, by Professor Laycock we believe, that the membrane consisted of a fungoid growth of a vegetable character. Such growths, the author says, have no doubt been occasionally seen, but he is sure they have not been present in several cases he has carefully examined; consequently he feels satisfied that epiphytes have played no essential or important part in the cases he has seen. Pus, granular corpuscles, oleoprotein granules, and epithelium, constitute, he says, the bulk of the softer forms of the so-called lymph; such fibres as we see in the buffy coat of blood coagula constitute the bulk of the toughest varieties of lymph. Now and then ulceration, and even sloughing of a superficial layer of the mucous membrane, occurs; and blood, and pus, and semi-detached pieces of lymph, may form fetid shreds of some size.

Enlargement of the lymphatic glands, in the immediate neighbourhood of the parts affected in diphtheria, is a symptom that was early recognized in the disease. This Dr. Jenner looks on as but an illustration of the general law, that when a part is severely or deeply inflamed, the lymphatic glands to which the lymphatics of the inflamed part lead become the seat of active congestion, and ultimately of inflammatory exudation. On this point he says, in a foot note, he differs from Trousseau, who attaches much diagnostic value to the enlargement of these glands. The enlargement, Dr. Jenner tells us, is simply in proportion to the severity and depth of the local nasal, pharyngeal, laryngeal, and tracheal disease. He has never seen it greater in proportion to the local mischief than in

other forms ofcynanche pharyngea. In children, generally, the swelling of the glands, other things being equal, is greater than in adults; and in strumous children the enlargement is always greater, other things being equal, than it is in ricketty or healthy children.

In describing the symptoms of the disease, Dr. Jenner groups the cases he has seen so as to constitute varieties, warning his readers at the same time that this is done for the sake of drawing a picture of the disease for others' use, there being, as in all other acute specific diseases, no marked lines of demarcation between them, the several varieties running insensibly into each other, and presenting the most protean combinations. The groups he forms are six in number, the first being the *mild form of diphtheria*, in which there is little fever, and the local affection is trifling. The second variety is the *inflammatory form*, in which symptoms of severe cynanche pharyngea precede the exudation of lymph. The redness is in some cases vivid, in others dusky; the swelling of the uvula is frequently considerable, and it often has, from effusion of serosity into the submucous tissue, a jelly-like transparency and aspect. The pain in the act of swallowing is great, so that occasionally deglutition is, from this cause, almost impossible. The febrile disturbbance may be extreme or moderate; the pulse is frequent, but soon becomes weak; there is considerable sense of weakness and of illness. From twelve to forty-eight hours from the first symptom of throat affection, a layer more or less extensive of tough lymph coats the inflamed surface; and when death follows, it does so from extension of the exudative inflammation to the larynx, trachea, &c. We extract the following cases from those given in illustration of this form:—

"Mr. A., who expectorated the cast of the trachea on the table, was a patient of Mr. Pearse, of Tavistock Square. Feeling poorly, Mr. A. left home on Thursday fortnight, for two or three days—on the Monday following Mr. Pearse examined his throat, found it dusky-red, and the uvula to have that peculiar gelatinous aspect which indicates submucous serous effusion. On the next day Mr. Pearse observed patches of lymph on the right tonsil and on the uvula. On Friday, not only was there a layer of lymph covering the uvula, arches of the palate, part of the soft palate, and the pharynx, but, by depressing the tongue, we could see the erect epiglottis covered with the same tough lymph. That the patient's larynx was affected was shown by his husky whispering voice, the necessity he was under of sitting erect in bed, the recession of the soft parts of the chest-walls when he inspired, the lengthened inspiration, the lividity of his lips, the fulness of his eyes, and the venous injection of his conjunctivæ.

"His urine was loaded with lithates; it contained a considerable quantity of albumen, and a very few granular casts of tubes. There is a specimen of the urine on the table, and I have placed some of it under the microscope. A large number of crystals of uric acid have formed in it since it was passed. On Saturday night he coughed up the cast of the trachea on the table, with temporary relief to the breathing. Many large pieces of membraniform lymph were coughed and hawked up the next day, but on Sunday afternoon he died somewhat suddenly. His pulse on Friday was 120; on Saturday 130; and on Sunday midday as frequent. Of seven cases I have seen referrible to this variety, three proved fatal; one forty-eight hours from the first symptom, and one (Mr. A.'s) so late as the eleventh day of illness, and all three by extension of the exudation to the larynx.

"The following is a mild case of the inflammatory form of diphtheria:—Eliza R., aged 20, had been in constant attendance on Dr. E. On March the 13th, 1858, she begun to feel ill, with sense of weakness and general lassitude. Her throat at this time was slightly sore; her skin was hot, her pulse quick, her bowels confined; she was thirsty, without appetite, and had constant nausea. I saw her on the 18th, when there was, in addition to these symptoms, a patch of lymph on the left tonsil, which was red and swollen. On the 20th she was admitted into this hospital. On this, the eighth day of illness, her skin was still hot, and her pulse frequent, but not particularly weak. There was some swelling and tenderness just outside the angle of the jaw on the left side, the lymphatic glands down each side of the neck were enlarged and tender, deglutition was painful, and the voice was hoarse. The patch of lymph noted on the enlarged left tonsil on the 18th had increased in size; it was removed by a pair of forceps, and a raw, red bleeding surface was exposed. The arches of the palate were very red; and the tongue was covered with a white fur; there was no albumen in the urine.

"When rapidly convalescing from the diphtheria, she had, on the 24th of March, an attack of acute rheumatism, from which she recovered in little more than a week, and left the hospital well."

The third variety is the *insidious form of diphtheria.* In this there is no severity in the general symptoms, no marked soreness of throat, no notable swelling of the lymphatic glands; but suddenly, and, if the pharynx have not been examined, unexpectedly, laryngeal symptoms supervene, and death rapidly follows from suffocation. If the pharynx be not examined, the disease is confounded with primary croup. Four cases in illustration of this form are given; they show fully, as remarked by Dr. Jenner, the importance of examining carefully the pharynx in every case, even the most trifling, of sore throat.

"A child, aged about six years, living in a villa near the Brecknock Arms, had suffered for some days from slight sore throat; but

was not thought to be sufficiently ill to require medical advice, or even to be kept in the house, when the sudden occurrence of 'croupy' breathing excited alarm. Mr. Baly, of Kentish Town, was called to the child. He found that the pharynx was covered with lymph, and that the larynx was deeply involved in the disease. About two P. M., within an hour of Mr. Baly's first visit, I saw the child with him; the friends declined to allow tracheotomy to be performed; the same afternoon the child died.

"Ten days since I saw a similar case a few hours before death, with Mr Noyce, of Brecknock Crescent. Several children of the family had just suffered, and recovered without treatment, from sore throat. They had been, in the parents' estimation, worse than was our little patient (aged 6), when her croupy breathing excited their alarm. The friends declined to allow tracheotomy to be performed, and the child died within forty-eight hours from the supervention of the first laryngeal symptoms.

"A child, aged about six years, had suffered for two or three days from sore throat. The surgeon who saw the child before the father left home in the morning, assured him that the disease was trifling. On the father's return, late at night, the croupy breathing excited his alarm. I saw the child, with the surgeon, about midnight. There was then rapid pulse, husky whispering voice, shrill respiration, and great dyspnœa. Before seven o'clock in the morning the child was dead.

"The infant child, aged eleven months, of a surgeon, had for a day or two slight symptoms of sore throat. The father's fears, although he is an anxious parent and a most intelligent and experienced practitioner, were not excited till between ten and eleven at night, when he noticed for the first time laryngeal breathing. The extreme recession of the softer parts of the chest walls during inspiration proved the impediment to the passage of the air through the larynx. There was a little lymph on the pharyngeal mucous membrane when I saw the child about eleven P. M. Before morning it was dead. These cases will impress on you the importance of examining carefully the pharynx in every case, even the most trifling, of sore throat."

Bretonneau, in his fifth memoir, which was written in 1855 in the form of a familiar letter to Drs. Blache and P. Guersant, alludes to these so-called insidious cases, and refers them to the next form decribed by the author—the nasal; we have no doubt they often arise in, and extend from the nose, with a sudden aggravation of the symptoms; but the cases adduced by Dr. Jenner, especially the last, show that the disease often steals on in an insidious manner, in the pharynx itself, extending to the air-passages. These cases are so alarming, and require so much vigilance on the part of practitioners, that we venture to supplement the author's observations by Bretonneau's remarks on the same subject:—

"Believe me, this sudden loss of life which so naturally alarms you is not real; for when the disease appears and, as it were, explodes, it existed before, and was silently though abundantly developed in the nostrils. Do not object to me that I have said it, and explained and repeated it in every possible manner. After having clearly pointed out the insidious occurrence of nasal diphtheria in large or small localities where the sudden extinction of life struck so much terror into medical practitioners and populations, and having said to my colleagues, 'You cannot sufficiently suspect the secret seizure of the disease upon the nostrils,' I was still far from knowing my lesson; for it is only recently that I have completely acquired the conviction that the Egyptian disease is developed in the nostrils, and extends there without any warning and without any apparent symptom. It must be confessed that such is the case.

"Under these circumstances, a minute and attentive vigilance is imposed upon us. When the Egyptian disease prevails, and is propagated with the intermittent march which characterizes its irregular outbreaks, and when, from one year to another, it has raged so extensively as it has been seen to do in Paris within the last six years, it is incumbent on us not to wait for visible symptoms; but at the least sign of snuffling, at the slightest indication of coryza, to *feel* and not to *look* beyond the angle of the lower jaw, below the lobe of the ear, and thence down the sides of the neck, If in this region we should find any swollen lymphatic glands, our attention should be redoubled; for if we feel a glandular swelling, it is more than probable to be a consequence of the absorption of the Egyptian virus.

"Do not be satisfied with this examination, for it is necessary that the diagnosis should leave no doubt; examine, therefore, the upper lip below the nostrils; in the most simple coryza the skin is reddened *equally* under each nostril, while in the case of the Egyptian disease, it is *only* on the side of the glandular swelling. If the swelling exists on both sides, it is unequal; on the side where the swelling is least, the redness of the lip of the same side is least. From the period of this discovery, we are certain that there is a special affection, in fact, the Egyptian disease.

"We see what value the information obtained by this inquiry possesses; for we may discover the day on which the reproductive germ has begun to develop itself in the nostril first attacked, and the day of transmission to the nostril secondarily affected, as exactly as we follow, from the fourth to the fourteenth day, the age of a variolous pustule. This knowledge

will besides accurately guide the treatment which ought to be pursued according to the age and the stage of the disease.

"Then let me advise you to act instead of talking, and with a glass syringe, the padded extremity of which ought to be yielding and incapable of causing pain, inject into the nostrils alternately a solution of nitrate of silver, and although the injection may flow back through the nostril which has not been injected, it will be well that the latter should also receive an injection of suitable strength, if, on the corresponding side, there is the least swelling of the cervical glands.

"In descending along the course of the pharynx, the caustic solution will accompany the epispastic secretion as far as the arytenoid cartilages, and up the sloping channels formed by these cartilages it will penetrate into the larynx, and in the air-passages it will follow the blistering secretion, thus preventing or arresting its action."

The fourth variety is the *nasal form*. After some febrile disturbance of low type, a sanious discharge from the nose attracts attention; then the glands about the angle of the jaw swell; the arches of the palate and the tonsils are found to be red and swollen; muco-purulent fluid bubbles in quantity from the narrow isthmus faucium, and prevents you obtaining a clear view of the pharyngeal mucous membrane. After a few days the disease subsides, and you remain in doubt as to its true nature; or it spreads to the larynx, and the diagnosis becomes easy, and death enables you to verify it; or some other member of the family or an attendant sickens, with unmistakable symptoms of diphtheria: or the disease begins with trifling sanious discharge from the nares; the lymphatic glands are scarcely at all affected; and the nature of the disease is not even suspected till death is imminent, from suffocation; or, again, when the exudation reaches the pharynx, the pharyngeal symptoms may be most distressing, and lead to inspection of the part, and the detection of the disease. Dr Jenner makes no allusion to the rather fanciful diagnostic point to which Bretonneau attaches so much weight in the paragraph we have already quoted from his fifth memoir; but he gives three interesting cases of this form of the disease, two of which we extract. It is to be regretted that there is not a particular account given of the state of the mucous membrane throughout the whole nasal cavity in the fatal case.

"The following case of nasal diphtheria possesses special interest from the chief evidence in favour of the diagnosis being the communication of the disease to another—just the kind of evidence which

we consider conclusive in regard of the nature of some obscure cases of scarlet fever.

"Master P., aged about two years, suffered some febrile disturbance of low type, and profuse muco-purulent discharge from the nares, and redness and swelling of the velum pendulum palati, uvula, arches of the palate, and tonsils; the posterior wall of the pharynx was not very clearly to be seen, in consequence of the large quantity of muco-purulent fluid that bubbled in the pharynx. Dr. Carlill, whose patients this little one and his brother, less severely but similarly affected, were, thought the cases were true diphtheria. I had considerable doubt on the point. At any rate, as we could see no lymph, and the larynx was not affected, I hesitated to admit it. Dr. Carlill was in attendance from the 15th to the 28th of March, 1860; and a lotion was injected into the nares and throat by Dr. Carlill daily, from the 15th to the 25th. On two occasions Dr. Carlill remembered distinctly that the child coughed some sputa into his face. On April 2nd, Dr. Carlill was himself attacked by diphtheria.

"Had the child whose case I am now about to relate recovered, and had not the child in the next bed suffered within a few days from unquestionable diphtheria, doubts as to the nature of the disease under which it suffered might have been felt.

"William W., aged two years and three months, a delicate child, the subject of rickets, was admitted into the Hospital for Sick Children on the 31st of December, 1860, the rash of measles having appeared on that day. The rash came out full and well; from the first there there were abundant sonorous and mucous ronchi audible over the whole chest. On the 3rd of January, that is, the fourth day of the eruption, there was much discharge from the nose, and a little ulceration of the orifice of the nares. His appetite was good, there was no difficulty in swallowing; the skin was very hot.

"By ten o'clock the same night a marked change had taken place in the child, and the following notes of its state were made by Mr. Sydney Ringer, the very able Medical Registrar to the Hospital:

"'Child prostrate; pulse 160, weak; respirations hurried, but not laborious; no lividity of the face or body. Abundant dirty muco-purulent discharge from the right nostril. Fauces, uvula, and tonsils red, and very much swollen, and covered with thick tenacious mucus. No exudation can be seen, but then the thick mucus in the pharynx prevents a perfect inspection of the parts.' At nine A. M. the fifth day of eruption, the child was weaker, but could still swallow solids and fluids, and apparently without difficulty. The eruption was well out.

"About one P. M. the nurse raised the child's head, in order to give it some food—it fell back and died without a struggle.

"The body was examined the next day. The lungs were the seat of extensive acute emphysema, and of a little collapse. The lymphatic glands along the trachea were not enlarged; those behind the angles of the lower jaw were only just perceptible to touch before the integuments over them were divided. The whole substance of

the *velum pendulum palati* and uvula was considerably thickened and toughened. The cavity of the pharynx was smaller than natural, the mucous and sub-mucous tissues thickened; the mucous membrane was bright red, and elevated into rugæ. Here and there, on the surface of the mucous membrane at the upper part of the pharynx in the vicinity of the posterior nares was a little lymph, granular in form, very soft, and easily removed by scraping with the knife, nowhere forming a continuous layer. The *aryteno-epiglottidean* folds were greatly thickened, the epiglottis also decidedly but less thickened. The mucous membrane of the larynx was less smooth and polished, and at the same time redder than it should be, and the *chordæ vocales* were more spongy looking than natural. The abnormities of the larynx were all insignificant in degree—perhaps such as are often present in measles. The lesions of the upper part of the pharynx were decided, although still trifling; they were the result of nasal diphtheria complicating the measles. The child probably died at so early a period of the diphtheria, in consequence of the weakness resulting from the severe attack of measles under which it was suffering at the time the diphtheria supervened, and its natural delicacy of constitution (it was not only ricketty, but also tubercular). The cause of death was asthenia."

The fifth variety is the *primary laryngeal form*, in which the disease seems to have its principal focus in the larynx, and to extend thence to the pharynx. In all these varieties, when death ensued, it was in consequence of the exudative inflammation affecting the larynx, and obstructing the entrance of the air into the lungs; in the next or *asthenic form of diphtheria*, the patient, when it proves fatal, dies from the general disease.

"Sixth Variety.—*The asthenic form of diphtheria.*—In this form the disease begins sometimes with general and local symptoms of moderate severity. Soon, however, the pulse is rapid and feeble; the sense of weakness and of illness extreme; the skin is not very hot, but there is a peculiar feverish pungency in its heat as appreciated by the touch; the complexion has that dirty-looking, pallid, and opaque aspect which we see in so many general diseases. In some cases, from an early period of the disease, the brown tongue, the sordes on the teeth, &c., and the muttering delirium which are characteristic of the so-called typhoid condition, are present. On examining the throat, more or less lymph is seen on the pharyngeal mucous membrane. The lymph in these case has always, in my experience, been of the granular, pulpy, or softer form. The patient may swallow with perfect facility, and the throat symptoms be trivial in degree, and this even when the pharyngeal mucous membrane is covered with lymph. In other cases the pain in deglutition is extreme. The extension of the exudative inflammation to the larynx, when it occurs, is shown by a little huskiness and want of power in

the voice, and imperfectly marked laryngeal breathing. The patient usually dies in about ten or twelve days, death being the result not of apnœa, but of asthenia. It is failure of the heart's action, and not want of breath, that causes death."

In rather more than half of the fatal cases Dr. Jenner has seen, death resulted directly from the disease of the larynx. The symptoms of it are sometimes present from the outset; twice he has seen death occur within twelve hours from the time when the laryngeal symptoms were first noticed, and he has never known death to be delayed more than five days from the time when symptoms indicated clearly that exudation had occured in the larynx. When death has occurred from asthenia, the fatal result has usually taken place during the second week of the disease, unless the patient has been greatly weakened by previous disease. Sometimes death is caused in another way, from "septicæmia" consequent on the absorption of fetid matters from the pharyngeal tissues. The pharynx is covered with lymph, the mucous membrane below sloughs, the breath is very offensive, the glands about the angles of the jaw swell extremely, the areolar tissue in which they are imbedded is the seat of the effusion of serosity, the skin assumes that dirty yellowish tint which it has in septicæmia, the mind wanders, and the patient rapidly sinks.

The second lecture opens with the consideration of a group of symptoms depending on disordered innervation; and which, though very remarkable and important, have been scarcely noticed by any of the earlier writers on diphtheria. Bretonneau alludes to them in his last memoir, and Trousseau describes one form of them, but it is only during the recent epidemic that they seem to have been duly appreciated. Paralysis of various forms, both of sensation and motion, is the characteristic of this group. It occurs occasionally before the symptoms peculiar to the pharynx have disappeared; but more frequently it is during convalescence, or even when convalescence might be supposed to be fairly established, that the lesion of the nervous system begins to appear. Dr. Jenner describes three forms in which it manifests itself. In the first, the parts about the throat are those engaged—the voice becomes snuffling; the muscles of the pharynx act irregularly and spasmodically; and in swallowing, both fluids and solids are frequently returned through the nose, and a choking sensation is often experienced. This is the most common form in which the derangement of the nervous system shows itself after diphtheria; and the author says, Trousseau has shown that in these cases there is a loss of sen-

sibility in the *velum pendulum palati.* The symptoms generally continue for several weeks, and gradually disappear.

The heart is the organ next in the order of frequency to manifest disordered innervation; its pulsations become slow and feeble; and the patient dies from a literal asphyxia, or absence of pulsation. The following case, the author says, should be treasured in the mind, and indeed its importance cannot be over-estimated. In another case it was noted that, for some time before death, the pulsations of the heart were not more than sixteen in a minute.

"In July last, I twice saw, with Mr. Adams, of Harrington Square, a young gentlemen about ten years of age. There was nothing to excite alarm in one less aware than Mr. Adams of the grave nature of even mild cases of diphtheria. The local and general symptoms were very slight. The exudation on the pharyngeal mucous membrane was limited in extent; deglutition was easy; the general symptoms were, with the exception of a feeble pulse, trifling. The local disease quickly improved. On one day only was there even a trace of albumen in the urine; and even on that day, so small was the quantity, that its very presence was not beyond doubt. The intellect was unaffected throughout.

"The boy was considered by his friends convalescent, when vomiting occurred—still there was nothing to alarm the bystander. But Mr Adams, at his visit, found the heart's beats, which had been falling in frequency for two days, thirty-six in the minute, and at the same time weak. He at once appreciated the gravity of the boy's situation. When I met Mr. Adams an hour after, the lad's countenance was not indicative of any very serious affection; it spoke only of a sense of languor; vomiting was said to be frequent, but the tongue was scarcely furred; the mucous membrane of the throat looked healthy; there was no albumen in the urine; the air entered freely to the bases of both lungs (we could not of course sit the boy upright, but we turned him on to his side); the heart's beats were rather feeble, the first and second sounds free from murmur, and of normal duration; the period of rest—the long silence—was longer than it should be, that is to say, the heart's beats were infrequent, not slow.

"The infrequency and the feebleness of the heart's beats and the vomiting alone told that the boy's life was in danger. The next morning Mr. Adams informed me the pulse, notwithstanding the freest use of stimulants, had fallen to thirty-two; in the afternoon it was twenty-four only, and soon after he died, apparently from cessation of the heart's action."

In another set of cases the paralysis is more widely extended, not limited to the parts supplied by the *par vagum* There

is a general loss of power in the limbs, especially the lower, which become unable to support the weight of the body: though, when lying, the patient may be able to move the legs, still the power is gone, and there is no efficient control over their movements. Morbid sensations, such as tingling in the hands and feet, may be experienced at the same time; and in one case, which recovered ultimately, there was loss of sight in one eye. Recovery is rare,—death ensuing as from general paralysis.

The symptoms of disordered innervation, in the cases Dr. Jenner has seen, have generally set in within three weeks from the date of convalescence. Where the disorder has been limited to the parts supplied by the *par vagum*, it has supervened earlier than when it was more generally diffused. The longest period after the first symptoms of diphtheria, at which he has known death to have occurred from disordered innervation, is about two months.

The author now proceeds to consider the pathology of the disease: there are many points under this head that we should be glad if he had more fully discussed, especially the nature or mechanism, as it were, of the several forms of disordered innervation. As to some of the doctrines he considers established by his observations, we must return a Scotch verdict, and say, "not proven." The first proposition,—"that the disease is infectious," is, in the ordinary acceptation of the word *infectious*, denied by Bretonneau, who argues that it requires direct contact for its conveyance; but it must be admitted, that many cases occur in which direct contact cannot be proved,

The second, third, and fourth propositions,—that the infection-element does not require any of the ordinarily considered anti-hygienic conditions for its development, and that it is doubtful if these either favour its development or give it a more untoward course, and that family constitution is one of the most important elements favouring the development of the disease, and determining its progress,—as to these we must say, after a careful consideration of the evidence "not proven."

These propositions are so much at variance with all our experience of all other epidemic and infectious influences, and are so subversive of established doctrines, that for their establishment the evidence should be incontrovertible: now, the only evidence adduced amounts to this:—1st, Of all Dr. Jenner's cases of diphtheria, only twelve occured in hospital practice, whereas of all other diseases he has seen more in hospital than in private; and as hospital patients are derived from a class who are placed in more unfavourable hygienic conditions than are private patients, it is inferred from the rarity of the disease

among them, that anti-hygienic conditions are not especially favourable to the development of diphtheria. But it may be asked, is not Dr. Jenner's experience on this point exceptional? Indeed, we believe the experience of the majority of physicians is directly the reverse of Dr. Jenner's, and that the disease has always spread most freely, and been most virulent among the ill-fed poor, living in badly-ventilated, filthy localities; a good illustration of this may be found in the pages of our own Journal, in the able papers of Mr. Houghton, describing his experience of the epidemic in Birmingham.

Again, Dr. Jenner argues the disease was more fatal among his private patients than among those in hospital; but this, he admits, may have arisen from his seeing most of the private cases as a consultant, and because they were so severe as to require a second opinion. Then, as to the influence of family constitution, it must be borne in mind that the members of a family are generally subjected to the same hygienic influences, and that without eliminating these, no legitimate induction can be drawn from the progress of the disease in particular families; there may have been nothing "patently bad" in the circumstances of these families; but we all know that there are in many houses concealed influences, such as old neglected sewers, inefficient stench-traps, &c., that are more deleterious than more evident influences.

As to the remaining propositions,—that diphtheria and scarlatina are not identical, and that diphtheria and croup are not essentially the same disease,—we fully agree, notwithstanding the different verdict on this point by the French essayists.

We pass now to the consideration of the treatment of the disease. Like all true observers of nature, Dr. Jenner has no faith in specifics in this disease: when there is acute fever, and a highly inflamed throat of a bright red colour, he recommends salines, mild aperients, if necessary, and fomentations and soothing applications locally. When the case assumes the asthenic type, as shown by the dusky colour of the throat, feebleness of pulse, and extreme sense of weakness, he gives wine in full quantities. When the exudation appears, and is spreading, he believes a single efficient application of a strong solution of nitrate of silver, a scruple to a drachm of water, frequently stays it; sponging with equal parts of hydrochloric acid and water perhaps more frequently attains the end, or an application of solid nitrate of silver; frequently repeated applications of any of these he has found to be injurious, and all of them do harm when the parts are much swollen, bright red, and covered with mucus. Topical treatment, he believes, does no good to the

general disease, on which point he is directly at issue with Bretonneau and Trousseau; its only objects, are, 1st, to limit the spread of the effusion; and, 2nd, to prevent septicæmia.

When the larynx is invaded by the effusion, and death is imminent by suffocation, he advocates tracheotomy. He gives a most ingenious explanation of the greater success of this operation on children in France than in England, founded on the greater prevalence of rickets in England, and consequent greater flexibility of the walls of the thorax, and inability to expel mucus from the bronchial tubes. The operation he would defer till there is distinct evidence that the ingress of the air is seriously impeded. In the case of Dr. C—, whose life was saved by it, the face had become blue, and the pulse imperceptible; the eyes were closed, and the diaphragm was making those convulsive contractions that show respiration is about to cease, when the knife entered the larynx, and the air was drawn in by what seemed really the last effort; the natural hue of the face returned, his pulse was again perceptible, his eyes opened, consciousness was restored, and the patient was alive again.

We cannot conclude our notice of this work without repeating that we consider it a most valuable contribution to clinical medicine.

A Practical Treatise on the Diseases of the Sexual Organs of Women. By F. W. VON SCANZONI, &c. Translated from the French edition by A. K. GARDINER, A. M,, M. D., Professor of Clinical Midwifery and Diseases of Women, in the New York Medical College, &c., &c. New York: De Witt. 1861. 8vo, pp. 670.

IF our American brethren do not present us with many original works, though in this respect they are rapidly improving, they at least confer a benefit upon us by their translations of standard French and German writers.

Scanzoni has a European reputation, and no doubt deserves it; and it is a great advantage to those to whom English is pleasanter reading than German, to be able to refer to his recorded experience, and compare it with their own. Shall we venture to add, that looking over the volume has given us another kind of pleasure, to wit, that of finding that a great textbook of Germany, by one of her most distinguished men, is not a whit better, or fuller, or more original, than those of British authors?

We should hardly place Scanzoni on the same level with

Kiwisch and one or two others in point of originality, although we fully admit the weight due to his experience.

The chapters are unequal, some are even meagre, and there is little attempt to trace the sequence of diseases. No doubt this is a fault of all comprehensive treatises, yet the attempt ought always to be made.

For example, we have a strong suspicion, and something more, that many organic diseases have their origin in what are called functional disturbances—amenorrhea, dysmenorrhea, menorrhagia, and irregular menstruation. If we select menorrhagia, in our experience the most frequent, as well as the more traceable cause of organic change, we shall find it followed by permanent hypertrophy of a congestive character, but moderate in extent; then (in married women) follows erosion, and not unlikely retroversion, or retroflexion. These diseases are all described by Scanzoni, but their clinical history is left imperfect.

The chapters on the various forms of ulceration, and that on flexions, are perhaps the best. We are surprised, however, to find the author almost doubt the existence of corroding ulcer. We cannot for a moment agree with Kiwisch that it is nothing but a decomposed medullary sarcoma. It is undoubtedly an epithelioma.

When speaking of flexions of the uterus, Scanzoni puts forth an opinion which we suspect is nearer the truth than some of our friends will allow: viz. "that flexions of the womb do not acquire any importance, nor are followed by any serious dangers, save when they are complicated with an alteration in the texture of this organ." This must be still more true in retroversion where the organ is not flexed, as we believe that there is a greater extent of mobility allowed to the uterus than it has credit for.

As to the treatment of flexions, Scanzoni rejects all mechanical support, and limits himself "to causing, as far as possible, the alterations of texture which complicate it to disappear; and, simultaneously, to combating the resulting accidents which appear in the remainder of the system." And this important difference from some modern authorities is not the result of preconceived notions, but the consequence of seeing the failure or mischief of the use of intra-uterine supports. Our own experience goes nearly to the same length, and we cannot but think that those who ignore the dynamic condition of the uterus, and limit themselves to mechanical appliances in this affection, adopt a false pathology and a mischievous practice.

Dr. Gardiner seems to have performed his duty as trans-

lator with care and fidelity, and has illustrated the work with a great number of woodcuts, chiefly of the different instruments employed. This for us is far better than drawings of diseases which are familiar to all, whereas it is hard to obtain foreign instruments, and still harder to get them made from description only.

If gun-shot wounds do not absorb all the medical men across the Atlantic, we should anticipate a considerable circulation for this volume; and we are sure that few obstetricians in these countries will be without it.

Chemistry in its Relations to Physiology and Medicine. By George E. Day, M. A., Cant., M. D. F. R. S; Professor of Medicine in the University of St. Andrew. London: Ballière, 1860. 8vo. pp. 526.

Dr. Day is well and favourably known to the medical scientific public by his translations of "Simon's Animal Chemistry," for the Sydenham Society; and of "Lehman's Physiological Chemistry," for the Cavendish Society. His present work professes to be a compilation, and does not pretend to much originality either of matter or arrangement. It is divided into three parts,—on the proximate principles forming the tissues of the body, on the animal juices and tissues, and on the vital processes that take place in the body. On each of these subjects, the information afforded is valuable and trustworthy, and will prove of use to advanced students; but it must be admitted that it loses much of its value by the foreign air that pervades it, and by the want of a masterly arrangement of the multifarious details of each of these complex subjects.

Almost all the authorities quoted in the work are German, and the numerical statements are usually made in grammes, which must be multiplied by 15·432 to convert them into English grains,—a numerical operation that few readers are capable of performing without the aid of pencil and paper. It is quite right that, in a scientific work, the original data and results of experimenters should be quoted; but in a work intended for the use of students, it is a grave defect to leave those data in their original form, without supplying, in every case, their equivalents in English measures. With regard, also, to the amount of information supplied to the reader, we think a judicious writer would have applied the pruning knife freely, and have developed the important details at more length. Notwithstanding these drawbacks, we believe the publication of this book

furnishes the student and physician with a manual of physiological chemistry which will enable him to dispense with other sources of information, unless he be engaged in the prosecution of some definite line of scientific research.

The opinion is rapidly gaining ground among physiologists, that in a perfectly healthy man, the excretions (exclusive of substances ingested that never entered into the composition of the body) consist simply of water, urea, carbonic acid, and mineral salts; and that the various substances, so complex and fugitive, which are often associated with them, are abnormal products, which have escaped conversion into some one or other of the standard excretions. In this point of view, most of the substances described in the first part of the work possess more interest for the chemist than for the physiologist, except so far as some of them may be regarded as necessary steps in the transformation of food into the legitimate excretions of the body.

On the famous controversy as to the origin of urea—whether exclusively from the change of tissue, or from this and the food conjointly—Dr. Day hesitates to express an opinion, but evidently leans to the view of the double origin of this important product. We have always thought that the adoption of this view leads to hopeless confusion of ideas as to the real importance of urea; and also that the principal argument in its favour, the supposed non-assimilation of gelatine, is not in conformity with our experience of the value of this substance as an element of food. It cannot, indeed, be doubted, that over-eating, like over-drinking, or any other excess, leads to a deranged condition of the system; and that in the case of over-eating, this derangement may show itself in an excessive discharge of urea. But surely it is not reasonable to argue from the body in disease to the body in health. A dose of calf's-foot jelly, that after a hearty meal of soups, turbot, and three or four dishes of meat, will derange the digestion of even an alderman, will be taken with profit and will prove highly nutritious to a convalescent patient, and will not be followed in the latter case by that excessive discharge of nitrogenous excretions that in one shape or other constitutes the main feature of the gouty diathesis.

Surely the misguided, though zealous, physiologists, that experiment upon themselves, by eating 32 eggs in the day, or forcing three or four pounds of gelatine into their recalcitrant stomachs, are not to be regarded as in a state of health either of mind or body; nor are their experimental conclusions of any value, except so far as they prove the amount of voluntary torture that the misdirected efforts of men of science are capable of inflicting upon themselves. The engineer who, in the ex-

citement of a race, will throw into the furnace of his engine twenty or thirty fat hams, and will seat himself upon the safety-valve, is more likely to cause an explosion of the boiler than to make any discovery in the theory or practice of the steam-engine. The chapter on the fats contains much interesting information, and briefly told; and we observe that Dr. Day inclines to the opinion that the fatty tissues of the body are only due in part to the fats of the food, and are partly attributable to the change of the carbo-hydrates (sugar, starch, &c.) into fat. The author has omitted to remark on the most striking fact connected with this change, viz. that it is a retrogression, or deoxidation, and as such essentially a vital phenomenon. It can readily be proved that 162 lbs. of starch require 192 lbs. of oxygen for their perfect conversion into water and carbonic acid, while 303 lbs. of stearine require 888 lbs. of oxygen; or 100 lbs. of starch and stearine require 112 lbs, and 293 lbs. of oxygen, respectively, for their complete change into these standard excretions. The fats are therefore to be regarded as concentrated nutriment, stored up in the body for future use; not merely as heat-producers, but stocks of force, to be called into play when, from a change of external conditions, or of bodily health, the usual balance of the dynamical equilibrium of the body is disturbed. In the second part of his work, Dr Day describes at length, and in a manner most instructive, the Digestive fluids, the Blood and its allies, the fluids connected with Generation and Developement, the excretions of the Mucous membrane and Skin, and the Urine. Of the chapters devoted to these several subjects, the most elaborate, is that on the Urine. It is, however, founded on the same sources of information as those used by Dr. Parkes, whose work on the urine we have recently reviewed; and the results, as might be expected, are similar. Thus the important constituents of the urine per day are as follows, as given by the two writers.

	Dr. Day.	Dr. Parkes.
Urea, . . .	496 grs. . . .	512 grs.
Chlorine, . .	133 „ . . .	127 „
Sulphuric acid,	33 „ . . .	31 „
Phosphoric acid,	53 „ . . .	49 „

In the concluding part of Dr. Day's book, on the Zoochemical processes, the received doctrines of modern physiologists are given with some detail, and the information is condensed; but in this portion of the work, the reader, especially if a student, will most feel the absence in the author of that strong and vigorous mastery of the subject, and originality of thought and

expression, that lend such a charm to the writings of Liebig, and others of the pioneers in this branch of science. And although we can safely recommend Dr. Day's book, on the whole, as a useful guide and repertorium, it must not be supposed capable of superseding the works of other and more original writers, the study of which should constitute the constant occupation of the leisure hours of the medical student and practitioner.

Diagnostics of Aural Disease. By S. E. Smith, Esq., M.R.C.S., Eng.; Author of A Practical Treatise entitled, "Deafness and Diseases of the Ear," &c., &c,; Inventor of the Instrument for the application of Gases, Vapours, and Chloroform to various Organs in the Human Body. London: Baillière. 1861. 8vo. pp. 108.

This is one of those works which appear from time to time in different guises, but which are all meant to serve the same special end—to advance the interests, not of science, but of their authors. They are generally got up in a popular form, and are chiefly addressed to the non-medical public, and often obtain a large circulation among nervous and hypochondriac patients, who at once apply to the author either in person or by letter. Such works are also patronized by a certain class of medical newsmongers, who go about amongst their friends and acquaintances, extolling certain remedies as infallible, and their propounders as shining lights. We are occasionally accosted in the street by a casual non-medical acquaintance, and told of the wonderful new operation, and its marvellous results —of its inventor and his followers. Sometimes, too, the aspirant to practice and emolument will endeavour to bring himself before the public by the aid of lectures styled "popular," will distribute cards of admission, or have recourse to other means of publicity, as advertisements in general literary periodicals, the daily press, &c.

Works of the above nature have usually some new invention to recommend to the credulous, in the shape of an instrument, or a medicine, or a peculiar line of treatment. In the present book we find "the author's speculum," "the author's instruments" for extracting polypi, perforating the membrana tympani, and applying solutions to that membrane; we also read of "the author's experiments;" and, last, but most important, the application of bromuretted vapour to the cavitas tympani. Three woodcuts illustrate the application of this

vapour; in one it is being introduced through the Eustachian tube to the middle ear; in another, a benevolent, bald-headed gentleman is applying it to the throat; and in the third, the same individual is carrying on his operation on the breast of an ill-tempered-looking woman reclining in bed.

In treating of the external meatus, Mr. Smith informs us that from the rapid action of the cerumenous glands, he has "known the passage to be completely closed in a few hours;" and gravely relates the case of a young lady who became quite deaf one hour after having "had her hair cut and washed." "On examination," he says, "we found the meatus in each ear completely stopped with wax of a light brown colour, rather soft, and much mixed with hair and cuticle, &c."! To remove such collections, "the syringe itself should be of silver." With respect to polypi of the ear, the best authorities on the subject inform us that they never have their origin in the membrana tympani; yet Mr. Smith, not only in the letter-press, but also in his woodcut "showing the extraction of a polypus from the membrana tympani," denies this; and although abscess of the membrana tympani is believed to be exceedingly rare, it is spoken of as if it were of frequent occurrence. In chronic inflammation of the drum "in females, the state of the uterine system must be attended to;" but in the same affection in males, we are not informed which organ to direct our attention to. In these days of transcendental and microscopical anatomy, experimental physiology, and congresses where sanitary laws are discussed, Mr. Smith's assertion will seem strange, that "whilst the study of chemistry is becoming daily more diffused, anatomy and physiology, the laws of health and disease, are forgotten, at the same time as the line of the poet—

"'The proper study of mankind is man.'"

We have, perhaps, misunderstood the author's meaning; for we confess to occasional surprise at the diction and construction of sentences—when, for example, we read of the membrana tympani being insensible *at* the touch. We are also puzzled as to the individuality or plurality of the author, for in the preface he speaks of himself in the first person singular, but in the work itself he rises, we suppose with the occasion, into the oracular "we" and "us". We would earnestly recommend Mr. Smith to reperuse his own book, and apply to himself the advice given—with a special intention—

to others, and to abstain from any further "adventure," as he styles "Diagnostics of Aural Disease."[a]

Die Anatomie des Ohres in ihrer Anwendung auf die Praxis und die Krankheiten des Gehör organes. By Dr. von Tröltsch. Würzburg: 1860. 8vo, pp. 105.

The Anatomy of the Ear in its Practical Application to Diseases of the Organ of Hearing.

Until lately, the study of the diseases of the organ of hearing had been very much neglected; and the treatment of them, abandoned by the legal practitioner, was monopolized by the charlatan and the empiric. Now, however, thanks to the labours of Toynbee, Wilde, and others in our own country, this branch of medicine has assumed its proper position and importance; and now that we can arrive at an accurate diagnosis, no longer should be heard the assertion that treatment in cases of "deafness" is useless. This boast of the ignorant, who never consider that deafness is generally the result of foregone disease, is unfortunately literally true in many cases of aural affections, as also in medical or surgical incurable diseases; but, on the other hand, owing to the opinion and advice based on a correct diagnosis of their case, and a comprehensive knowledge of pathology and medicine, how many patients have been saved from the degradation and miseries of mind and body they would otherwise probably have undergone at the hands of the quack! Notwithstanding so much having been said and written by eminent as well as honest men, there is still evinced by the profession at large but an imperfect knowledge of aural surgery; and this we believe to be mainly due to the very limited amount of clinical instruction; for, with the exception of the few special cliniques in London, and one in Dublin, the student in Great Britain has no opportunity afforded him of practical observation in that speciality.

From the earliest times, the anatomy of the ear has engaged the attention of many; and at this we need not wonder, when

[a] Since the foregoing was written, we have learned from the "Medical Times and Gazette" for 29th June, that Mr. Smith, "who is known as the advertiser of books on deafness," admitted in his evidence in a court of justice "that he practised before 'he took his degree,' and that he was 'an errand boy, a waiter, and a commercial traveller,' at Birmingham. It was suggested that the term 'commercial traveller' meant 'hawker of spectacles;' but the judge thought the fact that Mr. Smith had risen in the world was creditable to him."

we consider how perfect is its mechanism, and how beautiful is the adaptation of the means to the end. Since Fallopius and Eustachius published their observations,—now three hundred years ago,—many works have appeared abroad, and a few at home, on this subject. Saunders, the eminent English oculist, published in 1806 one of the earliest as well as one of the best books on the ear; to Professor Wharton Jones we are indebted for one of the most accurate and able descriptions of the anatomy of this organ; and amongst accounts contained in class-books, we would mention that given by the late Professor Harrison, in his "Dublin Dissector," as one of the best. In Germany the investigations of Sömmering, Lincke, Arnold, Kölliker, and Hyrtl, &c., have added much to our knowledge of the minute anatomy and the physiology of this as well as other subjects; and following their example of independent and truthful observation, and minute research, we find the author of the work before us. In treating of the tympanum in early life, he remarks: "The cavitas tympani in the fœtus cannot, of course, no more than the lung, contain air; all anatomists since Fabricius ab Aquapendente agree in considering it filled with mucus—a distinct structure, the product of mucous membrane; this is, however, not the case. In the cavitas tympani of the fœtus and new-born child there is no free mucus, but that cavity is occupied by an excrescence from the mucous membrane lining the labyrinth, which extends like a thick pad as far as the smooth inner surface of the membrana tympani, with which it is in apposition. This pad, presenting no doubt in section a muco-gelatinous appearance, is vascular in its surface, and covered with beautiful granular polygonal tesselated epithelium, and consists of embryo-cellular tissue (mucous tissue of Virchow). Very shortly after birth this growth from the mucous membrane diminishes, I believe by contraction, not by superficial decay, and thus place is made for the air." This view, which the author was the first to propound, "may tend," he proceeds, "towards explaining the remarkable frequency of affections of the middle ear in young children. During early childhood very extensive processes of development occur in the tympanum; practical experience teaches that wherever there exists a physiologically increased nutritious process and advancing development, the more readily will arise pathological disturbances in the nutrition—morbid conditions, and inflammations." According to Arnold, this "reddish gelatinous mass fills up the tympanum at the fourth month, but disappears shortly after birth."

As the name of the work implies, it is not merely an anatomical essay; for it presents to us, together with the description of

each part, the malformations or peculiarities it is liable to, its diseases, and their pathological and physiological effects. Numerous are the practical suggestions, from which we shall only extract one:—"Contrary to the general verdict of anatomists and surgeons, that the incision into the mastoid process is not under any circumstances a justifiable operation, I am of opinion that there is a very decided indication of its being undertaken, and that there arise symptoms, when this operation alone can save the life of the patient from the most serious danger. The cranium is trephined in cases where, probably, the principal lesion is supposed to be in quite a different situation, or where an abscess is believed to be merely in the vicinity; how much more, therefore, should we not be deterred from laying open one of the bones, when we can positively assert that we thus give a free exit to an abscess, which not only causes the sufferer agonizing pain and torture, but may readily lead to his death from its position and its vicinity to the brain, dura mater, and sinuses. The dangers of such an operation are, however, not to be compared with those of trephining; for, if properly performed, the dura mater is not opened, and the transverse sinus is avoided. In every inflammation of the ear, the aural region should, as a rule, be examined by making pressure ,and its appearance and sensitiveness noted." The practical importance of the foregoing cannot be too highly estimated; in inflammation of the tympanum spreading to the mastoid process, and producing abscess in its cells, periostitis, &c., palliative treatment generally fails to give relief; nature sometimes, but very rarely, effects a release in the proper direction for the pent-up matter; the surgeon should therefore be quick to decide, and prompt in carrying that decision into effect. Such cases admit of no wavering; hesitation will only increase the danger of meningitis, cerebritis, and phlebitis of the sinus; all of which may be avoided by a timely incision into the mastoid process, and thus allowing the pus to escape.

Dr. von Tröltsch has given in this work a clear and accurate description of the ear, more particularly in its practical bearing; he is not only familiar with the writings of our British aurists, but also thoroughly conversant with their practice. Indeed, the old rule would seem to have been reversed in his case; for while formerly we went to Germany to study aural surgery, this gentleman appears to have come to Great Britain for that purpose. Mr. Toynbee's and Mr. Wilde's opinions and practice pervade the whole work, added to which are all the modern Continental authorities, thus making it a valuable addition to the literature of aural surgery. Ere long it will, no doubt, be translated into the English language.

A Practical Treatise on the Ætiology, Pathology, and Treatment of the Congenital Malformations of the Rectum and Anus. By WILLIAM BODENHAMER, M. D. Illustrated by 16 Plates, and exemplified by 287 Cases. New York: Wood. 1860. 8vo, pp. 368.

THIS is a most complete and valuable work, treating in an exhaustive style of a class of affections on which no complete systematic or practical treatise has hitherto been published, the literature of which has till now lain buried in undigested confusion in the various channels throughout the range of science, and only to be found in brief and detached articles and memoirs, as presented in the transactions of societies, in some of the special treatises on the diseases of the rectum and anus, in the systematic works on surgery, in the dictionaries, or in the various periodicals of the day.

To remedy this serious evil, and to fill this void, the author has, he says, endeavoured to collect these scattered materials into one continuous whole, adding to them his own reflections and experience on the subject, and thus presenting in a systematic and connected form a complete and accurate exposition of the congenital malformations of the rectum and anus, their ætiology, pathology, classification, and treatment. In accomplishment of his purpose, Dr. Bodenhamer has collected nearly three hundred cases from various sources, chiefly original, which he has classified according to their species, and reported here nearly in full, and as nearly as could be in the precise language of their authors. Many of them have been translated from the French, the German, and the Latin, especially for this work. The author has made but few remarks in relation to any of them, preferring to present in full the instances themselves, as facts from which each practitioner might form his own opinion and draw his own conclusions. A copious bibliographical index is given, and on the whole the treatise is most complete, ranging throughout almost the whole literature of the subject, and nearly exhausting all that is to be said on it, in the present state of our knowledge. The book is well printed on fine paper, and beautifully illustrated by sixteen well-executed lithographs. There are, however, many typographical errors throughout, and some topographical, too; for we observe that Dr. Waters, of Parsonstown, who published in our own pages, in 1842, the second recorded case of the successful treatment, by Amussat's operation, of *atresia ani et intestini recti*, is described as of England. As the author makes some rather pungent remarks on the national prejudice or ig-

norance which has led the writers in the various countries in Europe to ignore one another respectively, and all of them to ignore what has been done by Americans, we here protest against the claims of Irish surgery being made over to England; and assert, moreover, that in our own pages a fact of the utmost importance, as bearing on this operation of Amussat's, has been recorded, which, strange to say, has escaped the observation of our author—whether owing to national prejudice or ignorance we will not say; but in the case of one, himself less severe, we might admit the plea of oversight!

Taking as a basis of classification the anatomical and pathological conditions of the various congenital malformations and imperfections of the anus and rectum, Dr. Bodenhamer divides them as follows into nine species:—

"First species.—This species consists of a preternatural narrowing of the anus at its margin, and occasionally extending a short distance above this point.

"Second species.—In this species there is a complete occlusion of the anal aperture by a simple membrane; or by the common integument, or a substance analogous to it, more or less thick and hard.

"Third species.—In this species there is no anus whatever, the rectum being partially deficient, and terminating in a cul-de-sac at a greater or less distance above its natural outlet, without any communication whatever, either externally or internally.

"Fourth species.—The anus in this species is normal, but the rectum, at variable distances above it, is either deficient, obliterated, or completely obstructed by a membranous septum.

"Fifth species.—In this species the rectum terminates externally by an abnormal anus, located in some unnatural situation, as at some point in the sacral region; or the rectum is prolonged in the form of a fistulous sinus and terminates by an abnormal anus, at the glans penis, the labia pudendi, or at different points in the perinæum. The natural anus being generally absent, its functions are performed by the abnormal one.

"Sixth species.—The rectum in this species opens preternaturally into the bladder, the urethra, or the vagina; or into a cloaca in the perinæum with the urethra and the vagina. In these instances the normal anus does not generally exist.

"Seventh species.—In this species the rectum is normal, with the exception that either the ureters, the vagina, or the uterus, open preternaturally into it.

"Eighth species.—In this species the rectum is entirely wanting.

"Ninth species.—In this species the rectum and the colon are both absent, and there is usually an abnormal anus situated in some extraordinary part of the body."

Each of these divisions has a section of the book devoted to itself, in which the anatomy, symptoms, and treatment are carefully described, and illustrative cases given. The third, sixth, eighth, and ninth species, are the most important, and are those which present the greatest difficulties in their treatment. For the eighth and ninth, when there is no abnormal anus, there is no remedy, except the formation of an artificial one, either after the method of Littré, in the groin, or of Callisen, as modified by Amussat, in the lumbar region. After a careful examination of both methods, Dr. Bodenhamer pronounces very decidedly in favour of the operation in the groin, as being most suitable for infants, because it is more simple and easy—the artificial anus is more conveniently situated, and—being nearer the termination of the digestive canal—allows greater space for the absorption of the nutritive part of the food. And, though the peritoneum is necessarily opened, yet the operation in the lumbar region does not always prevent the necessity for this.

For the third and sixth species, *proctoplasty* is recommended where it can be performed, that is, the operation of Amussat on the perineal region. This consists in making a free incision in the region where the anus ought to be; dissecting carefully till the *cul de sac* of the rectum is exposed; seizing this, and bringing it down, if possible, before opening it, to the level of the skin, then opening it freely, emptying it of its contents, and stitching the mucous membrane carefully to the skin. This method is recommended by Amussat for two reasons:—1st, to prevent the absorption of the meconium and bile by the cut surfaces, which leads, he says, to the production of jaundice and stercoraceous abscesses, from which he thinks the subjects of such operations most frequently die; and, second, to prevent the contraction of the passage, which constantly follows all the other forms of operation.

The author shows that the first of these reasons is more fanciful than true—the fact being, as all accoucheurs well know, that the majority of infants become jaundiced a few days after birth; but the second reason he thinks sufficient to make this method preferable to all others where it is possible. We extract his remarks on this head:—

"It must be admitted that M. Amussat's modification of the ordinary proceeding is in several respects a most decided and most admirable improvement—that it is highly ingenious and deservedly meritorious; but it also must be admitted, however, that it cannot be universally adopted; that it is by no means void of danger, for by depressing the rectum too much, serious if not fatal consequences might be the result; and that it is not, in every case, as

essentially necessary to success as he intimates. It will doubtless succeed well in all cases in which the cul de sac of the rectum does not lie deep, and, having no adhesions, floats loosely in the pelvic cavity, as it does in some instances; or when it can easily be separated from its adhesions, or these themselves are capable of being stretched, so that it can be drawn down without much force or difficulty to its external position in the perinæum. It is, however, on the contrary, impracticable when there is considerable deficiency of the rectum, the very cases in which it would be the most essential. The great difficulty in such cases is elongating the rectum sufficiently. In order, however, to obviate this difficulty, M. Amussat advises that the artificial anus be established in the coccygeal, instead of the perinæal region, inasmuch as the blind end of the rectum, lying nearer the former than the latter, would consequently have a shorter distance to traverse in reaching the surface, by being drawn directly backward, than by being pulled downwards to the natural situation of the anus. He therefore advises the external incision to be made immediately anterior to the coccyx, or to the left of this bone. He even advises the excision of the os coccygis, if necessary to gain room; having himself on one occasion, for this purpose, removed the extremity of this bone in a case of this kind. The child, however, died a few days afterwards."

For the sixth species, where there is a communication with the bladder, Amussat directs the same operation, care being taken that the posterior part only of the rectum should be opened, and that the communicating passage be not divided, lest there should be extravasation of urine.

The difficulties attendant on this proceeding of Amussat have been pointed out by many; and in a case recently under our own care, where the rectum opened into the urethra, corresponding to the sixth species of our author, forcibly presented themselves to us, and led us to make a series of dissections, to examine into the possibility of bringing down the intestine as described.

We believe that when the connexions of the rectum are sufficiently free to allow of its being brought down without force or much tearing, Amussat's plan should always be adopted; but even this will not, unfortunately, prevent the passage from contracting. In the ninth volume of our first series will be found a full account of the case in which Amussat first performed the operation. The child was of English, or perhaps *Irish*, extraction; at all events, it will be seen in the account of it to which we allude, that in about five months it became a patient of Sir P. Crampton, and that he was obliged to divide a firm ring which had formed round the anus, and so narrowed it as to render this operation, and subsequent dila-

tation by prepared sponge necessary. This is an important fact that has escaped the observation of Dr. Bodenhamer, though he seems to have traced the history of the patient down to her nineteenth year, and is one that lessens greatly the value of the operation suggested by Amussat. And the fact is not exceptional, as we find that another instance of contraction has been recorded by Mr. Curling, in the Medico-Chirurgical Transactions for 1860.

There is one point the experience of the case lately under our care suggested to us, that is at variance with the directions given by Dr. Bodenhamer, and indeed all other writers, as to the management of all these cases after operation—that is, the retention of a canula in the newly-formed anus.

We are directed to place a tube in the wound immediately after the operation, and retain it there for a considerable period. Dr. Bodenhamer figures an instrument for the purpose. The object is to prevent closing of the wound, and contraction; but we are satisfied that great injury results from it; and to the use of the tube we attribute, in a great measure, the death of the child we operated on. The constant presence of the foreign body in the rectum caused inordinate and hasty peristaltic action of the bowels. The food partaken of by the child was carried so rapidly through the intestines, that it was not properly digested, nor was there time for its absorption. The consequence was, the child wasted away, got thinner and thinner; and before the true cause of the chylous diarrhœa was recognized, the child fell into a state of marasmus. It now got erysipelas, which was prevalent in the hospital at the time, under which it sank rapidly, and died on the 13th day from the operation.

After the first few hours, there is nothing to be gained by keeping a tube or anything else in the track of the wound. The risk of adhesion is over, and the risk of contraction does not begin till after cicatrisation is complete. When this process is complete, even if the rectum has been brought down as directed by Amussat, constant vigilance is alone able to prevent contraction.

We see that one of our contemporaries, in reviewing this book, has deplored the amount of talent and labour bestowed on a subject so unworthy. We dissent from this with all our might.

The subject of congenital malformations of the anus and rectum is one well worthy of the labour Dr. Bodenhamer has bestowed on it, and worthily has he worked it out.

A Treatise on the Surgical Diseases of the Eye. By H. Haynes Walton, Fellow of the Royal College of Surgeons in England; Surgeon to the Central London Ophthalmic Hospital, and Surgeon to St. Mary's Hospital, Paddington; Teacher of the Surgical Operations in St. Mary's Medical School. London: Churchill. 1861. 8vo, pp. 686.

In the twenty-ninth number of this Journal, February, 1859, we gave a lengthened notice of the first edition of Mr. Walton's book, which then appeared, under the title of "A Treatise on Operative Ophthalmic Surgery." This, the second edition, issues from the press with the new and improved designation of "A Treatise on the Surgical Diseases of the Eye."

The work before us is, as the author states in the preface, "a new edition in the fullest sense of the word." Not only do we find that much new matter has been introduced, but also that the entire book has been carefully recast, and thoroughly revised; thus affording full evidence of the author's desire to make the work one of practical utility, and as complete as a treatise on ophthalmic surgery could be made. We consider that he has succeeded admirably in his intention, and has given to the world the most perfect work of the kind—the only one, indeed, specially devoted to the surgical diseases of the eye in our language. Having stated so much, which is justly due to Mr. Walton, who has laboured long and earnestly in the cause of surgical science, we shall bring before our readers some points of special interest and practical bearing which we have noted in looking over this excellent treatise.

In the first chapter there are some sound practical hints regarding the administration of chloroform: the following extract is well worth the attentive perusal of every reader, bearing as it does upon the application of the anæsthetic to children:—

"Now," says the author, "as regards the use of chloroform in the special department of ophthalmic surgery, most unquestionably in infancy it does afford very great assistance; for, without it, resistance on the part of the little patient is certain. The very diminutiveness of the organ, whereby there is much less room for the use of the fingers and for instruments, together with the great delicacy of the parts, demand the utmost exposure of the surface of the eye-ball with the greatest steadiness. In former years the operation for congenital cataract was frequently postponed, because these desiderata could not be commanded; and I believe that in the present day their acquisition is considered impossible, and an operation delayed, to the great detriment of the patient. I strongly suspect that the reason why the posterior operation for solution of cataract

has been so frequently, but wrongly, advised in infancy, is because of the much greater nicety required to perform the anterior.

"Without the effect of chloroform to retract the palpebræ, to introduce the needle, and to employ it in a proper manner, not dividing the capsule too extensively, nor moving it too freely in the lens, lest dislocation should occur, without touching the iris, or using injurious force, is no easy matter—or, at least, it may not be easy. True it is that the modern spring eye-lid retractor, of silver wire or steel, removes some of the difficulty, but only a part, for the task of securing the child, as well as other obstacles, still remain.

"Again, from what I hear—and, indeed, I may say from what I see—it would appear that before the use of anæsthetics, the operation for congenital cataract was not unfrequently left unfinished. The capsule which blocked up the pupil was not always removed; and the operation in any given case was more often and injuriously repeated, not merely from the erroneous idea that then existed, and unfortunately still does exist to some extent, about the necessary repetition of them, but also on account of the difficulty that frequently prevented the surgeon from carrying out his previous intentions.

"With children, and young persons in general, even when the operation is painless, there is an expectation of something worse than what is actually felt, and generally a deficiency of resolution, that renders it impossible for them to be sufficiently quiet without violent resistance, or the employment of mechanical restraint; and failures and mishaps are more commonly due than could be supposed to the unsteadiness of the eye. If I had noted down all the instances that I have witnessed of foiled endeavours, they would form a large page in my note-book.

"An infant that has lost its pupil from purulent ophthalmia, or any other cause, is not now doomed to darkness till the adult period, or at least need not be, as in past years. We can operate upon the smallest eye, and the consent of the patient is not necessary.

"The public are becoming alive to the disadvantage of holding down children. A lady called upon me recently, to make an arrangement for an operation on her child's eye, and at once asked if I used chloroform in such cases. I answered that I did, and requesting the reason for the question, she said, 'I have just left the house of Mr. ——, who has declined to employ it; he declared that by rolling up my child in a table-cloth, and the aid of two strong assistants, he could manage her, or the most unruly young lady. I told him that her timidity and highly nervous susceptibility made me dread the effect of such an ordeal upon her mind.'"

We give this long extract, to show not only Mr. Walton's views relative to the exhibition of chloroform in the operations about the eyes of young persons, but also to enable us to make reference to the vast importance of the use of this agent in the

operations for congenital cataract in infants. During the last twelve years we have operated on several cases of congenital cataract, and, when the patient was very young, we have invariably exhibited chloroform, and with the happiest results. In no case have we had active inflammation following the use of the needle—always introduced by us, through the cornea—nor have we had any other untoward result, which we ascribe to the passive condition of the patients, and to the insensible condition of the eye. Then, again, in the removal of small portions of capsule from the posterior chamber, and which blocked up the pupil, the use of chloroform has enabled us to perform this delicate and somewhat hazardous operation with perfect ease, and without any of those bruisings, or injury of the iris, which must occur in a greater or less degree whenever the patient becomes uncontrollable; hence we regard the application of the anæsthetic as of incalculable advantage in the operations required to restore sight in these most interesting cases. With regard to the use of chloroform in adults, we quite agree with the author's views: they are sound and practical. He says:—

"I now pass to those operations on the adult eye in which we may receive considerable assistance from insensibility. It is evident that here there should be a distinction between such cases as require chloroform merely because of lack of moral courage, and those in which it is of positive advantage under any condition; as in one we may leave the choice to the patient, or we may object; in the other, it is our duty to recommend it. It is a fact that, with the fullest consent and greatest determination on the part of a person endowed with a resolution that could endure a limb to be severed from the body without a groan or a cry, and with every desire to assist the operator, anæsthetic sleep may be advantageous. The majority of operations for artificial pupil, especially where the proceeding is complicated, and requires the use of more than one, or the reintroduction of the same instrument, fall under the latter category. An eye, for the most part, that requires this aid is much damaged, and the vitreous humour is too frequently disarranged; so that there is needed the greatest steadiness of the eye-ball, with long continuance of a given position, and an absence of much pressure. Now, the movements of the eye-ball may be quite involuntary, and the eyelids will twitch, in spite of the most resolute will. But not the least disadvantage of consciousness is the compression that the straight and oblique muscles can and do exercise in such operations. When acting violently, they exert considerable influence, and the effect of such an agency, at such a time, is always hazardous in several ways. Again, in many operations of general surgery, the sooner the manipulation ends, and the instruments are out of the body, the more certain is the result; this is doubly true of the eye. These re-

marks may be said to apply in the main when the eye-ball is to be opened for the extraction of any body, be it capsule, animalcule, or any particle driven into it from without, and decided difficulty or injury is apprehended.

"Surgeons do not generally adopt my plan of closing the eyelids after the operation for 'extraction' with strips of plaster; but when chloroform has been used, the practice is imperative, or the vitreous humour will be lost, if vomiting should ensue. The same holds good in any case when the cornea has been extensively incised. Except in a diseased and very fluid state of the vitreous humour, it is effectual."

In our notice of the former edition we rather deprecated the use of chloroform in those operations on the eye requiring a large section of the cornea to be made, lest the vitreous humour might escape, and the eye be lost should vomiting ensue; since that time we have seen cause somewhat to modify our opinion, and we have exhibited the anæsthetic in several such cases without any bad result; but, we must remark, without any vomiting having taken place. In all of these, however, we had a dread of irritability of stomach showing itself; for we candidly confess that we would still have great apprehension for the result, should vomiting follow the operation for extraction of cataract, by the full incision, no matter how carefully the plasters—which we invariably apply—had been adjusted.

For the last two or three years we have observed in our hospital and private practice that, although chloroform has been exhibited in every case requiring its aid, the excitement and sickness which we were formerly wont to see accompanying or following the use of the drug have usually been absent; this immunity from unpleasant symptoms we must attribute to two causes—namely, the greater care taken in its administration, and the greater purity of the agent. Certainly, it has been remarked to us, over and over again lately, by casual visitors, that chloroform did not seem to have the exciting effect it formerly so frequently had; nor has sickness to vomiting taken place in a tithe of the cases in which, some years since, we were accustomed to see that occurrence.

The fourth chapter, which is devoted to the consideration of injuries of the eye from mechanical or chemical agents, is one of a truly practical character throughout; and is one, moreover, to which the practitioner can refer with very great advantage, as, in the most concise, and at the same time perspicuous manner, the author records his experience of these every-day occurrences. Some of the hints with which this chapter abounds are most valuable, and, were it not that our

space and time are both limited, we would gladly lay before our readers copious extracts from its significant pages. However, as we doubt not the work will soon be in the hands of most of them, we content ourselves with drawing attention to it.

The sixth chapter, which treats of sympathetic inflammation of the eye-ball, is among the new matter of this edition. The general principles which it enunciates are quite in accordance with our own observations; and, though we might differ with the author on one or two details, we feel satisfied that his views will meet with the assent of all practical ophthalmic surgeons. The following is much to the point:—

"No general treatment, no local application, no dietary system, is of avail in checking unequivocal sympathetic ophthalmitis. Nothing of the kind can be depended on; and while I thus speak from my own observations, I endorse the statement of all trustworthy observers. The affection can be stopped or subdued only by surgical treatment. A portion of the eye-ball must be removed, whereby the particles which have set up the irritation, or the cretaceous, or ossified tissue which has acted as a foreign body, may be got rid of, or extirpation resorted to. When done early, this practice works wonders. If adopted before the sympathetic action has induced palpable structural changes, it will be effectual. At later stages it may arrest progress, and stay destruction. Even when the pupil has become adherent to the capsule of the lens, and the iris dull, I have seen a check."

Mr. Walton is evidently an advocate for the abscision, as he calls it, or reduction of the eye-ball, and avoids extirpation of the globe when he can. There are cases, however, in which excision of the eye-ball becomes clearly necessary; this he does not deny, and he puts the case thus:—

"I have proved many years ago (and I think I revived Mr. Barton's practice, which, so far as I can learn, had never been generally carried out in London by any one), that removing a portion of the eye-ball will generally suffice, as it is frequently in the anterior part of the eye that the morbid action is seated. The intensity of it is more common near the point of injury, and this is mostly in the front of the organ. I have very frequently found the vitreous humour healthy; this portion of the eye, therefore, not being spoiled. With the reduction of the eye-ball only, the deformity is very much less, and the case is better fitted for an artificial eye; and in early life the destined growth of the orbit is less interfered with. When the entire eye-ball is disorganised, posteriorly as well as anteriorly, especially when there is general enlargement, extirpation is the course."

Upon this quotation we shall merely remark, that it is not

always easy, in the first instance, to determine where the foreign body may be lodged, as in the case of small portions of metal, projected with great force against the eye-ball; hence, in two of these, of which we recently had example, the small portion of steel was found adherent in the choroid at the fundus of the eye, and in which simple removal of the front part, as in the operation for staphyloma, would not have sufficed to have remedied the sympathetic irritation in the opposite eye. As regards the advantage of having a stump to carry an artifical eye, it is of little consequence, usually, to those who suffer such injuries, as they are seldom in circumstances to obtain this cure for deformity, this inanimate element of beauty.

We cannot say whether the London surgeons had or had not adopted Mr. Barton's plan of treatment in sympathetic ophthalmia; but we know that in Ireland the practice has been usually adopted in all suitable cases, and that several practical papers on the subject have appeared from the pens of Irish surgeons, in the medical journals of the day.

As we do not propose to notice this treatise in detail, we must be content to examine only a few of the subjects in which it abounds. In looking carefully into the text, there are few topics that, to our mind, have been more ably discussed than that of squint. In fact, we look upon the chapter on strabismus as peculiarly well and clearly written, evincing, upon the part of the author, a complete mastery of the subject. And, while we would most willingly transfer to the pages of this Journal a large amount of what the author has written upon this interesting question, we are reminded that there is other matter farther on in the volume which will demand from us a lengthened review; hence, we shall only quote one or two sentences to show, in the first place, Mr. Walton's views of the remedy for this deformity; and, secondly, to exhibit his opinions of the effects of the remedy he suggests:—

"Of the treatment of squint, by general means, I have little to say, because the result is so miserably barren. Squint is the most persistent of all deformities produced by muscular action."

The attempts at cure by goggles, side glasses, side reading by binding up one eye, by patches of black sticking-plaster on the outer side of the orbit, and by prismatic spectacles, which are even theoretically "wrong, are unavailing, and worse than useless, if they cause delay of the proper, only certainly effectual, and perfectly safe remedy, an operation."

He does not deny the influence of constitutional treatment in the very early stage of squint, when the disorders directly inducing it are present and palpable; yet he contends little is to be expected in almost any given case, and points out that such treatment should have its limits.

He then enters very largely into the nature of squint and its varieties, and the operations which are applicable to each. This part of the subject he treats in a masterly manner, and leaves nothing unsaid which the practitioner can desire to know; and winds up with his experience of the issue of the operation in these emphatic words:—

"It only remains for me to notice the favourable effect of the operation. It surpasses the issue of any other surgical measure which is done for deformity. All that is desired is accomplished at once. No appliance is needed; no mechanical after-treatment wanted. There is really no risk, if the commonest care be observed; and, therefore, absolutely none in the hands of a good operator."

With these solitary quotations we must stop; but we would not be fulfilling our duty as reviewers, if we did not again speak of this chapter on squint in the most favourable terms, and recommend a close perusal of it to every one who has not obtained clear views on a subject with which even many professional men are not well acquainted.

As in our review of the first edition of this treatise on ophthalmic surgery we gave a lengthened notice of Mr. Walton's opinions upon the affections of the eye-lids, and artificial pupil, &c., we shall merely glance at these matters at present; and go on to inquire into the views he entertains relative to "iridectomy" and the "ophthalmoscope," two subjects that have occupied much of the attention of the profession since the first publication of his work.

We may remark, however, that the reader will find under the heads we have just made reference to, that the author has introduced much new matter, and has made himself acquainted with the improvements, or supposed improvements, in the operations for remedying these morbid conditions of the eye. Under the head of cataract, treated of in the twenty-third chapter, and which occupies some ninety pages of the book, there is much practical information; and he duly lauds our townsman, Dr. Jacob, for his zealous advocacy of the operation for solution through the cornea, and quotes that gentleman's views in opposition to the opinion held by Continental surgeons, and participated in by several in Great Britain, that

the needle operation in question is liable to engender corneal and destructive inflammation. With the following statements we entirely agree:—

"Unless ill health forbid, congenital cataract should be operated on before the eye-ball oscillates; and, as a rule, a child may be safely submitted to operation after the first month of life."

He then goes on to speak of the operation for solution, and its success and safety, especially in congenital cases. He next makes reference to a so-called novelty in the operation for removal of soft cataract, and he speaks of it in the following clear and fearless terms:—

"Of late there has been an attempt to introduce into English practice a German novelty, and which is the old operation of Gibson, with this modification only, that there is no previous use of the needle. It is called 'Linear Extraction.' The principle is, to scoop out the lens through a small corneal incision. That it is possible for the eye to be more quickly restored to usefulness by this method than by absorption, no one can doubt; but is more dangerous, almost beyond comparison. The majority of soft cataracts cannot be removed by extraction, even with a large conical section, with safety to the eye. A considerable portion must be left behind; so that there is the immediate risk that attaches to extraction, while absorption must be relied on to remove what remains. That the difficulty is increased by a small channel of egress, is obvious. I must utter my strong protest against it. The first case to which I saw the practice applied, was a most unfortunate one. With every thing to give the strongest hope of success, so far as could be learned from the state of the eyes, the worst result ensued. Both eyes were operated on at the same time. I was not present, and am unaware of the details. Six weeks after I was consulted by the young man, with the hope of my conferring benefit. Both eye-balls were collapsed. The operator is a man of very decided skill. I have witnessed other distressing failures, besides seeing partial bad effects of this ill-chosen operation."

Though one or two failures would scarcely justify our condemnation of any feasible operation, still we cannot but agree with the author that the operation in question is "ill-chosen." If the case admits of it, or rather requires it, we should perform extraction at once, without subjecting the iris to bruising and stretching unnecessarily, and the entire eye to what must be severe manipulation. If the case be one for solution, it cannot be one for the more serious operation of extraction, and therefore the needle should be used alone; and all the operator and patient have to do is to exercise patience, and time will clear the eye. This itching after novelty, especially fo-

reign novelties, has become quite a fashion in certain quarters; and many of our younger brethren are not content with tardy success; oh! no, they must accomplish everything by brilliant sleight-of-hand! Now, we would advise all such to be cautious. The aim of every surgeon should be to benefit his patient—not to gain ephemeral notoriety by being either the inventor or introducer of "some new thing," which may, in all probability, turn out to be a simple piece of downright jugglery. We do not mean to say there should be no progress; but we insist that all vaunted improvements in medicine and surgery shall be based upon true scientific and pathological principles, and shall bear the light of truth and of common sense.

We now come to the twenty-sixth chapter, which treats of "iridectomy, and other operations for the cure of glaucoma." As this subject is not only comparatively new in itself, but is also quite new in the pages of this treatise, we must devote considerable space to it, for the purpose of exhibiting Mr. Walton's views regarding a question still *sub judice*, and upon which we intend to express our own sentiments fairly and candidly. *In limine*, we may say that the author's opinions, which are put forth modestly, yet at the same time pretty positively, in the main are those which we entertain, after a very careful study of the subject, and after having had some little experience of the so-called "cures" of certain morbid conditions of the eye, to which the not very intelligible or appropriate name of "glaucoma" has been given.

Mr. Walton begins this chapter with a *resumé* of the opinions expressed by Professor Graefe on the operation of iridectomy, and its utility in the cure or arrest of glaucoma, as published in his three "Memoires," and which have been translated for, and have appeared in the fifth volume, issued under the auspices of, the "New Sydenham Society." He also quotes a paper on glaucoma, published by Mr. Hulke, in the forty-third volume of the "Medico-Chirurgical Transactions;" and, having given the views of both of these writers pretty fully, he sums up as follows:—

> "The whole pathology, then, of the disease of glaucoma, according to the above observer, is that, in the first instance, the choroid circulation gets deranged, hypertrophy of the vitreous humour ensues, by endosmosis, as a consequence, and the retina is acted on secondarily by pressure."

Though we believe Mr. Walton has fairly assumed that such are the pathological doctrines taught by Professor Graefe

and Mr. Hulke, we are far from admitting that the disease known as glaucoma could be recognized by any such description; on that point, however, we need not now enter. Already, in this Journal, pretty strong sentiments have been uttered; and for so far we see no reason to depart from the views which have, at no very distant date, been fearlessly promulgated. By and by, perhaps, we shall take the opportunity of adding one or two additional remarks; meantime let us hear what a practical man like Mr. Walton has to say upon some of those novelties that have made some of the uninitiated stare, and have led not a few into dangerous imitation:—

"Respecting the theory of the treatment," says our author, "it is hardly necessary to point out that Graefe removes a portion of the iris, because, as he supposes, this diaphragm is the source of the aqueous secretion, and that by reducing it less fluid is poured out, less pressure is therefore produced; and accordingly as the operation is done, as to time, so is the retina completely arrested from injury, rescued from complete destruction. No allusion is made to any influence exerted on the part which is stated to be the original seat of the disease, the choroid, nor to the progress of the affection, nor to the enlarged vitreous humour. That strong objections may be raised against the hypothesis must be apparent, but I leave the reader to ponder over it; and shall remark only, that even if it be granted that the iris is the sole source of aqueous secretion, after the removal of an eighth of it, or even a sixth, enough is left, I consider, for an abundant supply. Indeed, if the aqueous fluid produce an injurious or disorganizing pressure, so long as the chambers of the eye are filled by it, no matter if the secretion proceed from a mere speck of secreting surface, the deleterious effect must be expected. It also appears to me, that Graefe's theory to be correct, the fluid should be reduced to a definite amount, actually less than the space that exists for its reception. But this difficulty occurs, what would stop the vitreous humour from being more hypertrophied?"

Then, after one or two similar observations, we find the author stating—

"But it must not be supposed that I am writing against iridectomy with a spirit of opposition; most certainly I am doing nothing of the kind; I am merely giving my views on the rationale that has been advanced."

We confess we are fond of a joke, and the sentence we have just quoted, whether meant as such, is a capital joke, when read in connexion with the preceding observations. Mr. Walton tells us he is not writing against iridectomy; he is "doing nothing of the kind;" he is merely giving some home thrusts

to the "*rationale* that has been advanced" in support of it; just so—he would not say to Graefe and his followers, "I do not believe a word of the theory you have enunciated relative to the cure of what you call glaucoma by iridectomy." But, for the life of him, he cannot see any reason in all they have advanced. We rather think it would be difficult for any practical man to discover the *rationale* after which Mr. Walton seems to be in search; the fact is, his courtesy has prevented him from saying in so many words, that he considers the whole matter an arrant humbug; at least, such is the inference we draw from the entire tone of the chapter now under review. But, as we are unwilling to be the sole judges in the case, we shall extract a few more paragraphs; so that our readers shall be enabled to draw their own conclusions, whether Mr. Walton has not condemned, in unmistakable terms, the operation of iridectomy, for the "cure" of glaucoma.

"I proceed now," says he, "to speak of the result of iridectomy in glaucoma. That the operation has been recklessly performed by being applied to cases to which it was wholly inapplicable, according even to its propounder's theory, I have had frequent proofs; it is useless to give particulars."

Again:—

"I am sorry to say that I have seen several instances in which iridectomy had been applied when there was no glaucoma, and to the injury of the patient. In most of these it had been done, as the modern phrase goes, 'in anticipation of the disease.'"

These moderns, it seems to us, act upon the principle of the man who broke the eggs his wife was about to set for hatching; and thus, as he said, "killed her chickens by anticipation," lest they should grow up mischievous, and destroy his garden. Again:—

"I have saved many patients from being subjected to iridectomy, in whom there was very little defective sight from haziness of the vitreous humour, and whose eyes were affected merely with sclerotic inflammation. I have had satisfaction in ascertaining by actual inspection, that some of these, all that I have been able to watch, have completely recovered. But all these things tell nothing against iridectomy, *if it be* a valuable operation; certainly not—they only show the abuse of the measure."

Oh! certainly not, *if* it be a valuable operation! "Aye, there's the rub!" Yet, without doubt, Mr. Walton has saved eyes that became, under proper treatment, quite healthy, that otherwise would have been submitted to the operation, "in

anticipation of disease," as the moderns have it, and thereby would, in all probability, have been incontinently poked out. We have now surely quoted enough to show that Mr. Walton was not in earnest when he wrote that he did not condemn iridectomy as a cure for glaucoma; still there are one or two other sentiments, strong in their expression, which we cannot resist transferring to these pages, especially as they prove the correctness of our judgment regarding his views. He goes on to say, in continuation—

"But in the present instance," referring to the operation, and cases when he had saved patients from its infliction, "with the existence of great difference of opinion about the utility of the procedure, and when men are seeking for evidence of facts, the exposure of such errors and malpractice is of value, because it shows that there may be conclusions from very insufficient, as well as wrong data."

Then, after giving the result of his own experience, which is clearly against the procedure, he continues—

"There is quite authority enough, even from some of our English surgeons, to warrant any inquiring student to undertake iridectomy. If a man whose opinion in surgical matters is considered to be of a superior kind, more especially in ophthalmic subjects, speaks of it as a sure and certain remedy in glaucoma, and as arresting the disease and restoring sight in a marvellous manner, surely it ought not to be left untried. I will merely suggest that, if a trial be made, fitting cases should be selected, and that full and well-authenticated reports, extending over a sufficient period, be given by the operator to the public; and withal, that the facts be attested by others. The anonymous reports in the medical journals on most operations are, as a rule, of less value, where accuracy is needed than is supposed; and in the present case, those that have been published have not been exempt from this charge."

Again:—

"The unfavourable results of iridectomy have not been fully published. Little or nothing is said about the dangers, and still less about the possible bad results. There are no statistics on this head. We have only had a few hints about the escape of the vitreous humour, and hemorrhage within the eye-ball. I am told that some eyes have been lost by both occurrences. That the lens may become opaque without being wounded, but simply and directly as the consequence of the operation, I can testify, as it has happened in my own practice; and I have seen it occur to another surgeon."

Yes, let us have statistics by all means, but attested by some person who has neither a direct interest in the case, nor

in the operation. Hitherto the statistics on the subject have been worse than valueless, they were calculated to lead the unwary astray; and hence, without the salutary qualifications that Mr. Walton has introduced into the paragraph just quoted, we would not only have demurred, but strongly protested against the sentiment that "There is quite authority enough, even from some of our English surgeons, to warrant any inquiring student to undertake iridectomy." We contend there is no such thing, and it is clear from the way in which Mr. Walton puts it, that he holds a similar opinion. We know right well how readily "inquiring students" will undertake any operation without much warranty; therefore it is the solemn duty of every surgeon of standing and experience to test faithfully every doubtful proposition before he lends himself to propagate it, or to warrant younger and inexperienced men to undertake an operation in which there is any risk to life or limb, or any likely injury to a special sense. With regard, then, to this proposition of "cure" of what we have always considered, and still believe, an *incurable* complaint, we must enter our protest. It will not do for *any* individual or *any* institution to trump up a number of "cases" and "marvellous cures" of glaucoma; the true nature of each case must be certified, and the treatment and result given in detail. We must have no *hocus-pocus*, no creations of fancy—all must be literal, verified facts; and then we shall see whether much of the transcendental "ophthalmology" of the day, to use the modern jargon, is not mere moonshine, and as fleeting and valueless as the corruscations in the tail of the comet which has so unexpectedly appeared in this year of grace! It must not be supposed that, in making these observations, we are speaking against the operation of iridectomy as applied to the formation of artificial pupil; not at all, we are merely contending against this and a host of other imitative proceedings—some in accordance with von Graefe's views, and some in direct opposition to them—for the "cure" of "glaucoma" and the deep-seated inflammations of the eye. Like the author of the treatise before us, we are not writing against any operations, but simply expressing our inability to see the *rationale* on which they are advanced.

The last chapter in the treatise is on the ophthalmoscope, and a plain practical chapter it is. In a little more than twenty pages, Mr. Walton has condensed a mass of information on the use of this little instrument in the investigation of the deep-seated lesions of the eye; and he has fully accom-

plished what he purposes in the opening paragraph, in which he says:—

"I must remind my reader that, in accordance with the title of this book, he must not expect to find more in connexion with this subject than is needed for what I undertake to teach. While I shall be explicit enough for this, and even sufficiently comprehensive to enable the student to learn how to use the instrument—besides in general pointing out what is healthy appearance, and what is not—I shall abstain from entering into the treatment of the internal diseases of the eye."

After describing the discovery of this instrument, and its construction, he explains the preparation of the eye which is required, showing that, under usual circumstances, the pupil should be dilated by the use of a weak solution of atropia, while in certain instances, as in young persons with wide pupils, the application of belladonna or any of its salts may be dispensed with. He advocates the use of a very weak solution of the atropia, one grain to the ounce of water, as less likely to cause any unpleasant sensation being felt by the patient. He combats the idea that the application of atropia causes any congestion of the retina; and shows that, according to the observations of his colleague, Mr. Taylor, "the eye is more tolerant of the ophthalmoscopic examination when atropia is used than otherwise." He next describes the method of using the instrument, giving some plain and excellent directions to guide the student in acquiring a knowledge of how he can best obtain an accurate observation of the deep structures of the healthy or diseased eye. The following statements are worthy of note; and as they are cautionary, we quote them for the information of those who have not been in the habit of applying the instrument:—

"Physical peculiarities, apart from disease, render inspection of the eye more or less easy, or difficult. Sometimes the exploration is quickly made, at others it is tediously obtained; the unsteadiness, too, of the patient has its influence.

"An examination should not be uselessly or unreasonably long. It would be unpleasant to any one, to say the least of it, to have concentrated light on his retina for the greater part of an hour, and this persons seem to forget when they are learning to use the ophthalmoscope. We know that it is not very uncommon for the fundus of the eye to become preternaturally red during an ordinary inspection, a fact always to be remembered, and to be guarded against by avoiding a lengthened sitting, or by resting the eye for a few seconds when the process is necessarily prolonged. No surgeon with any common sense would employ the ophthalmoscope when it

would give pain, or cause any uneasiness. It is just in such cases that the internal examination of the eye is not needed; there is enough indication to direct our treatment. The intolerance to light is a significant symptom; and if it be associated with any surface-redness, there is evidence of inflammation of the eye-ball.

"On occasions where there is slight sensitiveness to light, so slight as to warrant a careful and brief examination, I reduce the lamp-flame, and illuminate less; toleration will then embolden us to employ more light, should it be required.

"The examiner is likely to fatigue his own eye by the consecutive inspection of several subjects. I have known indistinctness of vision to be produced, and to last for days. The preventive is, to avoid continuous work, or to use the eyes alternately."

The author next goes on to describe, at great length, the normal condition of the several structures of the eye that can be examined by means of the ophthalmoscope; on each point giving concise details regarding the appearances that are usually found, and which indicate a healthy state. Then he proceeds to point out the pathological changes which may be observed in the several structures, and the value of each indication in showing the nature of the disease, and what is likely to be the result of the lesion.

Of this part of the subject we cannot well give any analysis, as, in our limited space, we could not render it justice. All we can now do is to direct the reader who wishes to have some simple, yet practical instruction relative to the ophthalmoscope, to peruse attentively the last chapter in this treatise; and we can assure him he will find quite enough to guide him so far that he can, with safety, commence to investigate for himself—the only sure way, we may add, by which the student can become conversant with an instrument that has added so much to our knowledge of the true pathology of the deep-seated lesions of the organ of vision.

We must now bring this notice to a close, and, in doing so, we must give unqualified praise to Mr. Walton for the labour which he has expended upon his book, to render it a faithful record of scientific ophthalmic surgery. He has given us his own experience, gathered in a very extensive field; and he has, besides, laid under duly acknowledged contribution the published opinions of others.

When we say that the first edition of this work has already become a standard book, we need not wish it success, that it has long since achieved: but certainly, if most careful investigation truthfully recorded, lucid description, and practical views, combined with excellent type and beautiful illustra-

tions, constitute a good book, then Mr. Walton's treatise on the surgical diseases of the eye is, in every sense, worthy of the patronage of the medical profession.

There is one other part of the book which, in concluding, we cannot pass unnoticed, namely, the dedication, which we believe to have no precedent in English medical literature; for the author dedicates this edition to an Irish provincial surgeon, Samuel Browne, of Belfast. This compliment we feel personally, for, while our pages evidence that surgeon's ophthalmic knowledge, by his contributions to this department of surgery, which have from time to time appeared in them, we violate no confidence in stating that, for several years back, many of our most able reviews, especially those on sanitary matters, on quarantine, on questions connected with naval surgery, and on diseases of the eye, to all of which he has devoted special attention, have been from his pen.

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1. *Konung Carl den Tolftes Dödssätt. Historiska handlingar, protokoll öfver* 1859 *års besigtning af Konungens banesår, samt sammandrag af diskussionerna derom i Svenska Läkare-Sällskapet, på dess uppdrag* samlade och redigerade af Gustaf von Düben; Svenska Läkare-Sällskapets n. v. Sekreterare. Stockholm, 1860. P. A. Norstedt och Söner. 4to, pp. 24, with five plates.

On the Manner in which King Charles the Twelfth met with his Death. Historic records, Minute of the Inspection of the King's Death-wound, and Abstract of the Discussions thereon in the Swedish Society of Physicians, collected and edited for the Society, by Gustaf von Düben, Secretary to the Society.

2. *Om Konung Carl XII:s dödssatt. Meddeladt.* Af Prof. Carl Santesson.

On King Charles the Twelfth's Mode of Death. Communicated by Professor Carl Santesson. 8vo, pp. 18.

3. *Några anmärkingar om Bråckinklämning och Bråckoperationer*, af Doctor Carl Rossander, Andre Ofverkirurg vid Seraphimer-Lazarettet, Chirurgiæ Adjunct vid Carolinska Institutet. Stockholm, 1861: P. A. Norstedt och Söner. 8vo, pp. 109. (Aftryck utur *Hygiea.*)

Some Observations on Strangulated Hernia and Operations for Hernia. By Dr. Carl Rossander, Second Principal Surgeon to the Seraphim Hospital, Assistant Professor of Surgery in the Carolinean Institute. (Reprinted from the *Hygiea.*)

4. *Redogörelse för Sjukvården och Ekonomien inom Kongl. Serafimer-Lazarettet under år* 1860. Stockholm. Joh. Beckman, 1861. 8vo, pp. 64.

Report of the Care of the Sick, and of the Income and Expenditure in the Royal Seraphim Hospital, during the year 1860.

5. *Nogle Bemærkninger om Syphilisation eller Curativ Chankerinoculation.* Ved Prof. Dr. F. C. Faye, Overlæge ved Födselsstiftelsen og Börnehospitalet i Christiania. 8vo, pp. 16.

Some Remarks on Syphilization, or Curative Chancre Inoculation. By Professor F. C. Faye, Principal Physician to the Lying-in Institution and to the Children's Hospital in Christiania.

1 and 2.—Many of our readers are, doubtless, aware that in the month of August, 1859, the sarcophagus and coffin of King Charles the Twelfth of Sweden were, by command of his present Majesty, King Charles the Fifteenth, opened, for the purpose of having the deceased monarch's "death-wound examined by scientific and competent persons, with a view to obtain more accurate information as to the mode in which the king was killed"[a]. A previous examination of the royal corpse had been made in the year 1746, but was considered not to have been sufficiently complete to be of value in its bearings upon history. The results of the recent investigation are stated by Professors von Düben and Santesson to have been:—

1. That the fatal wound was caused by some description of gun. 2. That death was instantaneous. 3. That the projectile struck the left temple, passed through the head somewhat obliquely backwards and downwards, and came out through the right temple. 4. That the projectile probably was a large ball (musket, case, or falconet shot), whose diameter, however, little exceeded 1.5 inches, and which was impelled from a great distance. 5. That the king did not fall by the hands of an assassin. The quarto work, edited by Baron von Düben, is illustrated with drawings of the king's head, and of a skull prepared in imitation, exhibiting the nature and position of the wound, and the extent of injury to the bones of the skull.

3. An extract will best give our readers an idea of the practical nature of Dr. Rossander's useful volume:—

[a] See Medical Times and Gazette, August 11, 1860, p. 128.

"It is to be expected that where circumstances of a very peculiar nature do not occur, we should be able to perform *débridement* in the ordinary mode, that is, between the bowel and the hernial sac. It may, however, sometimes happen that the operation cannot be accomplished in this manner. Thus, if the sac be so closely adherent to the bowel that a hernial knife or director cannot be passed between them without the most evident danger of wounding the intestine in or above the seat of constriction, a wound whose limits cannot in such a case be calculated, the case is certainly desperate. Still worse is it if the bowel and sac and the outer layers are fused into a single mass, so that we cannot see what course to take, or rather cannot find any way in through the entangled mesh, and still must make a way. It is then necessary to take a bold step, only one thing is possible—*to effect the débridement within the intestine itself!* Absurd as this may sound, it is still perfectly rational; and that it may succeed, the following case will show. I quote the report in its integrity; it is copied from the Journal of the Seraphim Hospital. The history is rather long, but I consider it to be so remarkable in more than one respect as to deserve to be communicated *in extenso*:—

"Carolina Seraphia Lindström, a widow, aged 42, was admitted on the 5th of October, 1860, into the Seraphim Hospital, under the care of Dr. Rossander, for incarcerated right inguinal hernia. The patient stated that three years ago, after lifting a weight, she got hernia of the right side, which was sometimes in and sometimes out, but was always easily reduced, so that no elevation was observed upon the spot; a truss she never wore.

"On the 27th of September she took ill, with vomiting, recurring at intervals; the discharged matters were at first coloured with bile, but afterwards they were more dark-coloured and fetid. She says that on Saturday, the 30th September, she for the first time observed a tumour in the right groin, of about the size of a goose-egg. The abdomen has not been tender; there has been no alvine evacuation since she took ill, except a small one produced by a lavement on the first day. On her admission, on the 5th of October, a tumour of the size of a goose-egg, and not particularly tender to the touch, was found in the right groin; the abdomen was tense, rather tender; the pulse was 104, not low; there was no apparent gangrenous tendency. The taxis was tried, with the employment of ice during the day, when the tumour seemed somewhat diminished. In the afternoon there was a return of fecal vomiting; there was no action of the bowels, and the patient's condition was in

other respects unchanged. The night was tolerably quiet, in the morning there was vomiting. Dr. Rossander determined to perform herniotomy.

"The operation was commenced in the usual manner; a fold of skin was raised and divided. The incision had passed through the skin and the superficial fascia only throughout a small extent. The director was introduced through the opening so made, in order to divide this slight layer of connective tissue. Even during this manœuvre, the intestinal secretion appeared in the wound. The fascia was more widely opened only with the director, without the employment of the knife. Hereupon more fecal matter was discharged, but the total amount was not considerable. An attempt was now made to isolate a fold of fascia propria, which lay close under, but the attempt did not succeed. The fascia was found completely adherent to the hernial sac, throughout its entire extent. Moreover, the hernial sac had everywhere coalesced with the intestine. The seat of perforation appeared to be immediately below the constriction. The fibrous envelope, sac, and bowel formed, both in the seat of constriction and over the entire surface of the hernia, a single, firm, inseparable mass. The whole mass was subsequently divided, affording an entrance into the intestine. Even after this it was not possible, in any situation, to free the bowel from its coverings. By dividing the bowel nothing was found, because the constriction was so great, that only the finest probe could with difficulty be passed through it. Débridement externally to the bowel was, consequently, out of the question. A *Cooper's hernial knife was therefore introduced into the bowel, and with it two small débridements were effected through the intestinal wall, within the constricting ring.* The little finger could now at last be passed through; and fecal matter began, although in small quantity, to be discharged. The wound was left open.

"As a consequence of the operation, an artificial anus was formed, through which, during the first few days, the fæces were exclusively voided. The patient's condition improved considerably; and by the employment of an enema every second day, a portion of the secretion was directed through the natural passage, and gradually less and less through the fistula, which by degrees contracted, until at length it was not much wider than a probe. The patient's general state was favourable; but on the 6th of November vomiting set in, which however ceased after the use of a couple of teaspoonfuls of hydrocyanic emulsion. But on the following day it returned, and assumed more and more a slight degree of fæcal odour. No

fæces passed through either the anus or fistula, on which account a sponge-tent was placed in the latter. By the employment of such means, the fistula was so dilated, that for two days the fæces recommenced to pass through it, though in small quantity. The abdomen was not tender, but the bowels were felt through the integuments filled with scybala. The vomiting had ceased; the patient's strength was much diminished. Seltzer water was prescribed with such effect, that next day diarrhœa set in, a quantity of more or less hardened excrement being evacuated through the natural passage. The diarrhœa continued for some days, the discharge through the fistula gradually diminishing, until after three or four days only a little intestinal mucus came away. The patient's general health steadily improved, and the fistula contracted, and was perfectly healed two and a half months after the operation.

"Since the foregoing was written (on the 9th of February, 1861), the patient has been perfectly well, and has had no inconvenience from her complaint. There has been no return of the hernia.

"I must acknowledge that, when the completion of the operation was to be determined on, I was in great perplexity; and when it was accomplished, I was not aware that any such case had before occurred. I thought I had invented something absolutely new. But having found that the proceeding was not new, I must abstain from all claim to priority. About 140 years ago, two such operations were performed by Arnaud; and Dupuytren also is stated to have once performed herniotomy in the same mode, although, at least in his *Leçons orales*, I could find no account of it. It matters not, however, if the operation had been several times performed, its value would thereby only be the greater, and I should have the more reason to recommend the method. Perhaps, however, cases may sometimes occur to which it would be applicable, and the fortunate result of mine may, so far as it goes, encourage others to imitate the mode I adopted.

"The case is remarkable also in this respect, that gangrene occurred in the hernia, although the symptoms of incarceration were during the whole time so slight. It had certainly lasted long—ten days—but when the operation was undertaken, there was no reason to suspect the presence of gangrene. The explanation of this is, that it was not an entire loop which was contained in the hernia; that is to say, only an opening was found between the upper part of the intestinal canal and the intestine lying in the rupture. This latter portion of the bowel was an inch and a half in length, on which account it is most

probable that it was such a diverticulum as is often met with in the lowest part of the small intestine, which lay down in the hernia. That the history in this case, as it is in so many others, was fallacious, was proved during the operation. The hernia could not have been reducible before the strangulation. During the requisite treatment, the symptoms indicated constriction of the bowel in the neighbourhood of the incarceration; but now all seems to be in a good state, and the passage through the bowel to be perfectly free."

4. From the report of the Royal Seraphim Hospital in Stockholm for 1860, it would appear that during that year there were under treatment in the hospital 2703 patients, of whom 1735 were in the medical, and 968 in the surgical wards. Of these, 313 died, 255 in the medical, and 58 in the surgical division of the house, exhibiting a mortality of respectively 14·69 and 5·99 per cent., or a mean mortality for the entire hospital of 10·57 per cent. The average daily number of patients in the house was 266·11; or 154·11 in the medical, and 112·00 in the surgical wards. Of the 2703 patients, 77 paid in private wards, 1030 paid in the general wards, 131 were admitted by agreement with corporations in the metropolis, 1108 were received without payment, and 357 were from the Stockholm district. The average number of days which each patient remained in hospital was 35·93; or 32·42 in the medical and 42·23 in the surgical wards. The daily cost of each patient in hospital was, on an average, about 1*s.*; and the mean expense of each bed for the year amounted to about £18 2*s.* 8*d.* These expenses include the salaries of the medical men, clergy, door-keeper, and other officers; but do not include the cost of burials, nor assistance to the poor on leaving the hospital. The other items of which they are composed are the wages, fees, and board of servants and nurses; diet, medicines, the purchase and repair of furniture, articles of clothing, bedclothes, fire and light, sundries, keep of horses, &c. The salaries of the medical men, clergy, two door-keepers, &c., amounted in 1860 to about £748 2*s.* 6*d.*

5. Professor Faye's pamphlet is explanatory of his opinions on some points connected with syphilization, in reference to which they appear to have been misunderstood by Dr. Wildhagen in a paper recently published by the latter in the *Norsk Magazin for Lægevidenskaben*. We have lately given so much space to this subject of syphilization, and the views of the distinguished professor of medicine in the University of Norway

are so well known to the profession in the British Isles, not only from his published writings, but also from his personal and able advocacy of them during his visit to Dublin in 1857, that we think it unnecessary to do more on the present occasion than to place the title of his work on record.

Histoire du Développement de l'Œil Humain. Par le Dr. F. A. d'Ammon. Traduite de l'allemaud par de Dr. A. van Biervliet (de Bruges). Bruxelles: Van Buggenhondt. 1860. 8vo, pp. 182.

History of the Development of the Human Eye. By Dr. F. A. von Ammon.

Foremost among the ranks of those inquirers who combine with a philosophic and intellectual mind truthful and accurate observation in their researches, stands von Ammon of Dresden, who has presented to the public, in the work before us, the result of upwards of thirty years' arduous investigation of a subject hitherto but very imperfectly and fragmentarily known, more especially in this country. Our British medical literature has produced but little on this branch of embryology, with perhaps one exception, that of the membrana pupillaris, which has been carefully investigated by Hunter, Bell, Dalrymple, and Jacob. Hunter also described a membrane passing from the pupillary margin of the iris, backwards between the capsule of the lens and the ciliary processes, and becoming continuous with the posterior capsule. Dr. Jacob discovered the remains of, and sometimes the entire pupillary membrane in the new-born child, and gave beautiful engavings thereof in the 12th volume of the *Medico-Chirurgical Transactions.* To Mr. Wilde we are indebted for having directed special attention to this subject, and embodied the greater part of our present knowledge of the formation of the eye, in his learned and very practical essays on the "Malformations and Congenital Diseases of the Organs of Sight," published from time to time in this Journal. Indeed, with this exception, we are at present unacquainted with any work or essay specially treating of this subject, in English print; for although some of our ophthalmic authors have written on congenital peculiarities, none of them have entered into the consideration of the eye during fœtal life. For the literature of this specialty we must turn to the Germans, and amongst them to Meckel, Sperber, Huschke, Gescheidt, and Seiler; but for more detailed and accurate accounts to Bischoff, Arnold, and above all to von Ammon, who in the early part of this century

gave an impetus to ophthalmic inquiries by the publication of his *Zeitschrift für Ophthalmologie*, his *Monatschrift für Medicin Augenheilkunde und Chirurgie*, and later, in conjunction with von Walther, the *Journal für Chirurgie und Augenheilkunde*. Von Ammon is probably already well known to our readers through his great work *Klinische Darstellungen der angeborenen Krankheiten des Auges*. In the present work we find scarcely any references to previous writers on the subject; for the material was originally intended to have been worked into a much larger work, comprising the labours and results of others as well as his own.

With respect to what had been already accomplished, the author observes in his preface, "I may say I have read everything that has been written on the development of the eye; I have however endeavoured to forget it all, my own writings included, in order to retain an impartial view and judgment." As all embryologists know full well, the great impediment to their investigations on the human fœtus is the impossibility of obtaining a sufficient number of embryos to enable them day by day to prosecute their researches; when therefore we look at the work before us, and contemplate the eye from the earliest indication of that organ through all its stages down to the perfect and glorious work, well denominated by the Germans a microcosmos, we must indeed marvel at the persevering and unflagging energy, and admire the patience and untiring zeal which its author has exhibited in the achievement of such wonderful results. And in perusing them we unavoidably lose sight of the difficulties; for the diction is simple and precise, the meaning is never involved, but clear and distinct; the whole flows on like a narrative, and the result perhaps of long years' observation is told in a few lines.

The work, which is a reprint from the *Annales d'Oculistique*, in which it appeared after having been published in German, in the *Archiv für Ophthalmologie* edited by Graefe, Arlt, and Donders, is divided into three parts—the first treating of the development in the different intra-uterine periods; the second, of the formation and development of each separate part; and the third section treats of some of the laws which govern the formation of the fœtal eye. From the nature of the subject, it is difficult to give a synopsis of the work, and for a more detailed account, therefore, we can only refer our readers to the original.

With respect to the very first appearance of the eye, two opinions have been held; one, that of Baer, goes to show that

the eyes are originally separate and distinct; the other, propounded by the learned Huschke, that both eyes have an origin in common, and are afterwards separated by the cerebral vesicle. This latter view, however, is now generally held to be incorrect; and it is believed that each eye has a separate origin, that each is independent of the other, that the ocular vesicle is developed *after* the division of the cerebral vesicle, and that before that division there is not the slightest trace of ocular formation. The ocular and cerebral vesicles originally in communication, contain a fluid from which in the former the retina, in the latter the brain, is developed; these two vesicles become disunited, but again connected at a later period by means of the optic nerve. The retina, then, is the first formation; and around and within it are formed the transparent and non-transparent parts; the vessels and nerves are then formed, and afterwards the motor and protecting apparatus, and the lachrymal organs.

At the end of the first month of pregnancy the eyes are very close to each other, scarcely perceptible to the unassisted eye; and appearing through the lens between the cerebrum and oral orifice as oval prominences very slightly elevated, without any organization, of the same colour as the membrane enclosing the embryo. In the second month, the visual organ is of a bluish colour, larger and more prominent, without a trace of eye-lid, and the nasal and oral regions being more developed, is farther removed from the mouth. With the aid of a lens may be seen a blue elongated circle, with indistinct margins directed obliquely towards the other eye, and open inferiorly. At this spot there is a slight elevation of the skin, prolonged at either side, the first indication of the lower lid, which appears before the upper. At the end of this month the bulb appears like a small round button; the cornea is opaque and continuous with the sclerotic, to the inner side of which is connected a yellowish-black membrane, the future choroid; the lens is a mere disc, filling nearly the entire cavity, and having a tail-like appendage, the rudiment of the vitreous humour and central artery; the retina consists of floculi. In the third month the orbit is formed, and, the eyelids increasing in size, the globe appears like an acorn in its shell. The sclerotic is still open, posteriorly, where it is in communication with the cerebral vesicle. Towards the end of this month the muscles begin to be developed, the sclerotic becomes thicker, more opaque, and less blue; the cornea, on the contrary, becomes thinner and more transparent, allowing a view of the lens and rudimentary iris; minute vessels are

found to penetrate the sclerotic, posteriorly, going to the choroid; and the optic nerve, which consists of a semi-transparent gelatinous reddish mass, contained in a gutter-like sheath, is partially connected with the sclerotic; the arteria centralis is seen in a sulcus in the yet membraneous vitreous, going to the posterior capsule, which is quite close to the fundus; and the ciliary processes are visible. In the fourth month the parts become more and more developed; the transparent lens, flattened anteriorly, and conical posteriorly, and its capsule, are close to the cornea; the vitreous body is larger and more fluid, mostly white, sometimes green or yellow, but always transparent; the eye-lids are much larger, and their margins in contact, thus closing the eye. In the fifth month the walls of the orbit become more prominent, the conjunctiva covers the globe, the shape of which is oval; behind the large cornea is the blue iris, in the form of a ring; the sclerotic is in folds, to which the muscles become attached; the retina is partially floculent, and partially membraneous; the pigment of the choroid is developed, and the lens is round. At the end of this month the caruncle and the lachrymal ducts are first observed; and also the Meibomian glands; the palpebral conjunctiva possesses blood-vessels; the vessels of the choroid are established, and the pigment is of a greyish-brown colour. In the sixth month the eye-lids are firmly united, the muscles are perfect, but very thin, and possess nerves; the sclerotic is thicker, but still soft in its outer layer; the cornea is somewhat conical, the membrane of aqueous humour is perceptible, and also the uvea, which at this period gives colour to the thin iris; the ciliary processes are short, do not reach to the lens, and are covered with black pigment; the round transparent lens, attached anteriorly to its capsule, does not completely fill up that membrane, which contains some clear fluid, and is still very thin, particularly at its centre, where it sometimes appears to be open; the corona ciliaris is formed; the retina occupies the posterior segment of the globe, and is composed of numerous folds, or convolutions, similar to those of the brain; the membrana pupillaris makes its appearance, the anterior chamber becomes established, and contains some aqueous fluid. In the seventh and eighth month the vascular system is established; the posterior capsule is fully supplied with blood-vessels; not so, however, the anterior, the supply to which has ceased, and the pupillary membrane occupies the entire pupil. In the ninth month the connexion between the optic nerve and sclerotic is firm; the cornea is more convex; the pupillary membrane has nearly disappeared; the lens is smaller than

formerly, the retina is thinner, but of firmer structure, less convoluted, and in close connexion with the choroid; occasionally the arteria centralis is seen to ramify in the posterior capsule. After birth, changes are observable in the pigment, nerves, vessels, and muscles; and the ciliary processes become connected with the uvea, the cornea becomes thinner, the colour of the iris, which is always blue at birth (in the Germans) altered, and the yellow spot is formed; and the retina becomes thinner, more even, and transparent.

We have thus endeavoured to give a brief chronological summary of the formative process of this organ in the human fœtus, and have mentioned only the more striking changes of the various structures in each of the nine months of pregnancy. The chief part of the work is devoted to a minute description of each part, and the consideration of the morphological laws in connexion with the subject. The study of the developmentof the eye opens up a wide and interesting field of observation to the physiologist and comparative anatomist, and is of the greatest importance to the practitioner; for a knowledge of it will afford him a key to the solution of many apparently ophthalmic riddles, or, as they are improperly called, *lusus naturæ*, and satisfactorily explain the origin of most congenital affections of that organ; an intimate acquaintance with this subject will enable him to pronounce such affection as owing either to an arrest of development, a hyper-development, or a vitiated or defective formative process. The work under consideration is illustrated with twelve beautifully finished lithographic plates, which enhance its value, and facilitate the perusal of the text. We hope that some one well acquainted with the language and the subject will publish a translation in English, equal in accuracy to the French, of this, one of the greatest works which has lately emanated from the Continental press.

The Modern Treatment of Syphilitic Diseases, both Primary and Secondary, comprising the Treatment of Constitutional and Confirmed Syphilis by a safe and successful Method, with numerous Cases, Formulæ, and Clinical Observations. By LANGSTON PARKER. Fourth Edition. London: John Churchill. 8vo, pp. 403.

IN ordinary cases we should consider that we had discharged our duty in simply announcing the fact that the fourth edition of a book had emanated from the press, the former editions of

which we have noticed; but on the present occasion many circumstances conspire to demand at our hands more than a passing notice of Mr. Parker's valuable monograph. At no period of medical history has the study of syphilis been more earnestly attended to than the present. So many and such important facts have been ascertained about its etiology, progress, symptoms, effects, and treatment, that from having been one of the opprobria of medical science, it now ranks amongst those diseases most amenable to our treatment; and, excepting in some rare cases, one of those diseases whose diagnosis and prognosis, in the hands of the accomplished physician, are as fully established as those of any other disease with which we meet in our practice. It is true that we meet with occasional exceptions to this statement. At times the disease bursts out in some subject in whom some unusual idiosyncrasy causes it to assume a virulence or malignity that *à priori* we could not have expected. Occasionally a sore presents itself to our notice of so dubious a character, that, without further research, we might experience great difficulty in deciding as to its nature. Again, its position may be such as to cause some hesitation to arise in our mind as to the true nature of the disease. Again, in the secondary form of the venereal disease, difficulties may arise originating in many cases either in the ignorance of our patient, or in his desire, for various reasons, to deceive his medical attendant. Yet, with all these, we say it advisedly that in no other disease have the exertions of modern physicians and surgeons been attended with happier results than this, which is the subject of Mr. Parker's work. Our younger brethren who have not read up this subject, and who have been educated in the precepts that influence our line of practice now-a-days, can form no idea of the sufferings that the routine treatment of syphilis in the olden time entailed on its unfortunate victim—the success of a mercurial course estimated by the daily quarts of salivation resulting therefrom, the ulceration of the mouth, the destruction not only of the soft but the bony parts of the mouth and nose; the sudden, and for a long period unaccountable, death resulting from erethismus; the mercurial palsies, the mercurial stammerings, the long string of pains and penalties that but too frequently followed this naturally loathsome disease—form a horrible picture, of which, happily, in the present day we rarely meet with an analogue; and for how much of this improvement are we not indebted to the Irish School of surgery? To Alley, Moriarty, Carmichael, Colles, Wallace, and many other distinguished names, a debt of gratitude is due, which can only be repaid on our parts by strenuous exertions

still further to advance the treatment of that disease in the study of which they have been so successful. Though not prepared to profess unlimited adherence to all that Carmichael taught, still we have long felt that the part he played in improving the treatment of syphilis has never yet been sufficiently acknowledged. To his teaching, we have often felt, must yet be traced our improved and more scientific method of administering mercury; that he pushed his theories in this respect too far, we are free to acknowledge; still, at the period when he commenced to teach, practitioners ran so much into the opposite extreme, that it became almost necessary for him to be as extreme in the one direction as they were in the other; so that moderate men, by avoiding both extremes, should arrive at what our Continental neighbours term the *juste milieu.* And that such has been the result, a careful perusal of the writings of our best authorities, both at home and abroad, of the present period, is quite sufficient to convince us; and to this rule Mr Parker forms no exception; he is a moderate mercurialist, but this not to the exclusion of other tried and approved remedies in cases suited for their exhibition. In his work we also find a valuable exposition of our present state of knowledge on constitutional syphilis; and the various difficult questions connected with this branch of his subject are discussed, if not in an exhaustive manner, still with a grasp of subject, and lucidity of diction and arrangement, sufficient to put his readers *au courant* with the progress of modern science in this department.

Of late years the question has arisen, whether a woman having had intercourse with a diseased man, and immediately afterwards with one who was not so, could communicate to the latter the disease, without having herself contracted it. Not very long ago, a case of this very nature came under our notice, and our opinion was asked whether such could occur. The facts were these—A gentleman had connexion with a person on whose health he thought he could calculate; he was diseased; he went to the party in question, and reproached her with her misconduct: she denied being diseased, but acknowledged that she had, a very short time before his visit, received the embraces of a lover whom she subsequently ascertained to be diseased; that our patient came in shortly afterwards, and must have contracted the disease in this manner, but that *she herself had escaped infection*—which latter statement, on subsequent examination, proved to be correct. In such a case as this much depends on the veracity of the patient; for various reasons, so frequently do they falsely deny a second source of

infection, that it is extremely difficult to arrive at the exact truth; still, we gave it as our opinion that such could occur; but to determine this point in an exact manner, by a series of rigorous experiments, was reserved for M. Cullerier. These are his experiments:—

"Louise Vaudet, aged 16, entered the Hospital of Lourcine, Ward of St Mary, No. 9, on the 10th of October, 1848. She bore on each thigh an ulceration with a grey floor and abrupt edges. The disease dated a month. She had not been treated, and on entering the hospital she was affected with a violent inflammation of the skin, covering the abdomen and the upper part of the thighs, which had been brought on by walking. Ordered baths, poultices, rest (in bed) during several days. When the examination of the genital organs could be made, no ulceration could be detected, either on the vulva or on the anus. The vagina was red; it was the seat of an abundant muco-purulent secretion, but without any ulcerations; the neck of the uterus was healthy. Dressings to the chancrous ulcerations on the thighs with lint soaked in aromatic wine; injections per vaginam with a solution of alum. Six weeks after the patient had entered the hospital, the ulcerations diminished by one-half, and the vaginitis was notably improved. On the 25th of November, after having ascertained beyond a doubt that the mucous membrane of the vulva and vagina was not ulcerated in any part, and that the discharge from these parts was not inoculable, I collected upon a spatula the pus produced by one of the inguinal chancres, and laid it in sufficiently large quantities in the vagina. I made the patient walk up and down during thirty-five minutes, taking care to watch her, so that she might not place her hand on the vulva. After this lapse of time, I placed upon a lancet a certain quantity of the vaginal secretion, and I inoculated with it one of the patient's thighs. I then washed with water the vagina and vulva; I carefully wiped the parts, and then washed them again with a strong solution of alum. Forty-eight hours after, the puncture of inoculation had produced characteristic pustule. I left it till next day, so that the experiment might be more certain, and then destroyed it with Vienna caustic. Nothing whatsoever appeared in the vagina; the inflammation was not increased; and after two months the patient quitted the hospital perfectly cured of the vaginitis, as well as of the inguinal ulcerations."

"The second experiment was made upon Celestine X——, aged 24, who entered Lourcine, Ward of St Louis, No. 7, on the 28th of November, 1848. She bore on the left thigh an ulcerated bubo of two months' date, and which, according to her, had succeeded a pimple, which had only lasted for a few days, and which was seated on the internal surface of one of the labia majora. At the time of her admission into the hospital, no trace could be discovered of this pimple. The vulva, the vagina, the neck of the uterus, and the anus, were all in a perfectly normal state. The aspect of the ulceration

on the thighs made me suppose that it was specific. On the following day, the 29th, the pus proceeding from the bubo was placed upon a spatula and laid in the vagina, care being taken to carry it as high as possible. The patient was then made to walk about for an hour, without knowing that she was the object of an experiment. She was taken back to bed; and I then collected as much as I could of the vaginal mucus, remarking to some pupils and young colleagues who surrounded me, that none of the pus introduced into the vagina could be seen, and that what I had on my lancet was entirely similar to the normal mucus. I inoculated one of the thighs, using the same precautions in washing as I did in the former case. After two days, the characteristic pustule rose, and I only destroyed it after forty-eight hours. The vulva, vagina, and the neck of the uterus were carefully observed during several days, but nothing appeared; the disease restricted itself to the thigh. I must not neglect to say, that although there was no sign of disease in the interior of the organs of generation, yet I made on the same day an inoculation with the mucus with which they were covered, and obtained a negative result."

This form of contagion, which has been termed "mediate contagion," had been long supported as being possible by numerous writers, but we believe we are correct in asserting that to M. Cullerier is due the merit of demonstrating, by experiments such as those here described, its positive existence. That both syphilis and gonorrhea may be communicated in this way may be now acknowledged, and this admission may prove of great importance hereafter in cases of medical jurisprudence; and we agree with Mr. Parker in his opinion that gonorrhea is more likely to be communicated in this manner than syphilis; yet the fact cannot be too generally known, that either one or other form of disease may be communicated by persons *not themselves diseased*, so that the absence of disease on the part of the female is *no proof* that she was not the party from whom the diseased person contracted his infection.

Mr. Parker's remarks on constitutional syphilis, as we have already stated, show a thorough acquaintance with the literature of his subject down to the very date of the issue of this new edition; and it must be gratifying to every Irish medical man, proud of the position of his native country's literature, to find how liberally Mr. Parker has laid Irish writers under contribution, and how honestly he acknowledges his obligations to them. Few names occur more frequently in his pages than those of Carmichael, Wallace, and Colles. The late Professor Porter's[a] views on constitutional syphilis have full justice done

[a] In obedience to our feelings we cannot allow this opportunity to elapse without

them—in fact, we find in a condensed manner the views of all our leading authors on syphilis reproduced in a masterly manner in Mr. Parker's work, with his own sound and practical comments. The one special feature in his work, however, is the modification that he employs of mercurial fumigations: the advantages that he ascribes to this plan of treatment are such as to warrant a more extensive adoption of them in our practice. With this view, for the benefit of our readers, we reproduce Mr. Parker's description:—

"The patient is placed on a chair, and covered with an oilcloth lined with flannel, which is supported by a proper framework. Under the chair are placed a copper bath, containing from half a pint to a pint of water, and a tinned iron plate, on which is put from one to three drachms of the bisulphuret of mercury, or the same quantity of the grey oxide, or the binoxide, or other mercurial preparation: under each of these, a spirit-lamp. The patient is thus ex-

expressing our sense of the grave loss that the Irish school of medicine has sustained in the person of this amiable and accomplished surgeon. Those who knew the late Professor Porter are keenly sensible of our loss: those who did not we may be permitted to remind of the extent and value of his labours. Educated in Trinity College, where he took high honours—amongst others, scholarship—this gentleman commenced his surgical career as an apprentice to the late Sir Philip Crampton, and even in his studentship showed promise of becoming the ripe surgeon that he afterwards did. For many years he, in connexion with the late Professor Macnamara and Surgeon Harkan, acted as demonstrators in the private school originated by their master, the then Surgeon-General, which he started in the lofts over his stables in Dawson-street, and which, we believe, was the first established private school in Dublin,—the school which inaugurated a system of teaching that since then has been attended with such brilliant results in our city. Early in life he was appointed surgeon to the Dublin General Dispensary; then surgeon to the Meath Hospital, where he played no mean part in that system of clinical instruction carried on by such colleagues as Graves, Stokes, Crampton, Hewson, Thomas Roney, Macnamara, Collis, Smyly, &c., &c. and which, in a very brief period of time, rendered the clinique of that school one of the most brilliant in Europe; he then took part in the working of Park-street school, from whence he was transferred to the Professorship of Surgery in the Royal College of Surgeons, where, for five-and-twenty years, his brilliant classical fluent language lent an additional charm to the sound principles of surgical practice which he imparted to an attentive and crowded class. During these years his celebrated monographs on the Larynx and Trachea, and on Aneurism, appeared, together with many valuable papers and lectures in our periodical literature. The latest of these were his Essays on Constitutional Syphilis, that appeared in recent Numbers of this Journal. Full of honours, rich in the respect of his professional brethren, he rested from his labours when his death was least to be anticipated: he had but just recovered from a very severe attack of bronchitis, when he sustained a fracture of the neck of his thigh-bone; from which, however, he recovered sufficiently to be able to discharge the duties of his professorship last winter, and to attend the meetings of the Branch Medical Council, on which he was the worthy representative of the College of Surgeons; to all appearances he was in sounder health the evening previous to his death than he had enjoyed for months; but when the morning came, he was found to be but one other example of those who owe their own death to that form of disease on which their labours had shed much light—his death having been caused by the rupture of an aneurism that, we believe, had never been suspected during life.

posed to the influence of three agents, heated air, common steam, and the vapour of mercury, which is thus applied to the whole surface of the body in a moist state. After the patient has remained in the bath from five to ten minutes, perspiration generally commences, and by the end of twenty or thirty minutes, beyond which I do not prolong the bath, it is generally very free. The lamps are now removed, and the temperature gradually allowed to sink; when the patient has become moderately cool, the coverings are removed, and the body rubbed dry; he is then suffered to repose in an arm-chair for a short time, during which he drinks a cup of warm decoction of guaiacum or sarsaparilla.

"The apparatus requires some modification and arrangement to suit particular cases. Where it is wanted to induce a quick and decided action, the whole power of the bath should be brought into operation, and the largest quantity of mercury should be employed. In rapidly-spreading ulcers, this is required. Again, in chronic skin or throat diseases, where a powerful action would rather oppress the patient than cure his disease, the power of the bath should be modified, and not so great a heat or so much mercury employed. This is accomplished by using smaller spirit-lamps, or, when perspiration has once been induced, by the removal of one lamp, leaving the patient thus exposed for a time to the mercurial vapour alone. This should be done where the patient has been broken down by long-continued disease, in bad or weak subjects, or where a more prolonged action is required to eradicate the more deep-seated effects of the venereal poison, as in diseases of the bones, or indurations on the penis. Each particular case would require a greater or less modification of this kind. The form of mercurial employed is also of consequence. In skin diseases, the bisulphuret is to be preferred; in diseases of the throat or nose, the grey oxide, binoxide, or calomel is better, because the patient can bear the head immersed without sneezing or coughing, which he cannot do when the bisulphuret is used.

"I am in the habit of using four mercurial preparations for the bath—the bisulphuret of mercury, the binoxide of mercury, the grey or black oxide, and the iodide: to this list, Mr. Henry Lee has lately added the chloride of mercury. These may be used singly, or combined in different ways, to suit the peculiarities or emergencies of each particnlar case. The first three preparations are milder than the last, and from half a drachm to four drachms may be used with perfect safety. In one case half an ounce was used for each bath, and two applications were sufficient to bring the system fully under the influence of the remedy. The iodide must be used in smaller quantities; nearly the whole of this preparation is rapidly converted into vapour, and, unlike all the other preparations, leaves scarcely any ash behind it. From five grains to half a drachm of the iodide is sufficient, and it is better to use it in small quantities, mixed with a larger quantity of either of the other preparations. When calomel is used in ordinary cases, from ten to twenty grains

may be employed for each bath. In affections of the testes (sarcocele) and of the bones (the various forms of ostitis or periostitis), a combination of a scruple of the iodide, and one or two drachms of the bisulphuret or binoxide, would be a proper form. For local application to the cavities of the nose or mouth, calomel or the grey oxide of mercury are the best preparations. I have known the vapour of the biniodide of mercury used. A surgeon, by mistake, employed the biniodide instead of the iodide, in a most formidable case of secondary syphilitic ulceration. It produced violent diarrhœa with bloody stools, but it cured the disease. I have never used this salt by way of fumigation, on account of its irritating properties.

"A short preparatory treatment should be adopted before using the baths. The bowels should be kept free, and the use of wine, spirits, &c., prohibited. The patient should be free from fever, the tongue clean, and the freedom from organic diseases, such as those of the heart and lungs, more particularly, should be ascertained. Should such or other complications be present, they might require modifications of treatment, but would not prevent its employ, as this is not only the most certain, but the safest way of curing most forms of constitutional syphilis.

" This plan of treatment does not commonly require that the patient should forego his ordinary occupations of business, or that he should be confined to the house during its use. It must be admitted that its effects would be accelerated by confinement to bed, or to a couch in a moderately warm room; but this is by no means imperative, and I have very rarely advised it, except in such cases where exposure or exercise would be positively mischievous, as in the cases of sloughing, or rapidly spreading ulcers in the throat or elsewhere.

" The diet should be light, nutritious, and unstimulating: milk, chocolate or cocoa, night and morning; animal food for dinner, with weak wine-and-water. Where the patient has been reduced by mercury given internally, or by a combination of syphilis and mercury, the diet may be more nutritious; but stimulants should be avoided. Smoking must be prohibited, particularly in diseases of the throat and nose.

" In a great majority of cases the moist mercurial vapour, employed as I have directed, is capable of curing the disease without the assistance of internal medicine; but the cure is generally expedited and rendered more certain by the adminstration of the latter in small quantities. It may be very advantageously combined with frictions of small quantities of the stronger mercurial ointment. (See the chapter 'On Mercurial Treatment.') The treatment is always assisted by the decoction of sarsaparilla or guaiacum, drank warm night and morning, and immediately after leaving the bath. I prefer the latter, the compound decoction, made according to the formula of the Edinburgh Pharmacopœia. Where other medicines are required to assist the treatment, and I allude particularly to the va-

rious preparations of mercury, it is surprising how small a quantity is required when the patient is using the vapour. I have known several instances where diseases which have been rebellious to large quantities of mercury, given for long periods, yield immediately the baths were employed. The effects of mercury upon the system become very quickly manifest under the influence of the baths, when the system had previously resisted this influence. (I allude to the effects of mercury on the disease, not to its sensible effect on the mouth.) When I employ mercury internally, during the use of the baths, it is either under the form of the biniodide or bichloride, given in solution in small quantities, not exceeding the twentieth of a grain for a dose. The use of this medicine in drachm doses of the ointment in form of friction, in five grains of blue pill or calomel, two or three times a day, under the old plan of treating venereal diseases by mercury, can never be required, except it is wished to break up the health and constitution of the patient. How many have never recovered from internal mercurial treatments of this kind! I never saw the most delicate patient, either male or female, whose health was injured under the plan I recommend, and I have very rarely seen a disease that has not been cured. The experience derived from the treatment of many thousand cases warrants me in speaking thus positively on the subject.

"The time occupied in the cure of venereal diseases by the mercurial vapour bath is vastly less than that consumed by any other kind of treatment; its effects are commonly immediate, one full bath very frequently making at once an impression on the disease. Where the hair has been falling rapidly, one bath has arrested this; ulcers which have been rapidly spreading have been rendered stationary by one bath. After two or three baths, the improvement is in most instances marked; and the cure is effected in one-fourth, or even one-sixth, of the time required for the success of ordinary treatments. The nature of the cases determines the time occupied in the cure. In superficial skin diseases, or superficial ulcers of the nose and throat, the cure is very rapid. I have constantly known affections of this kind entirely cured in a fortnight or three weeks, with pleasure rather than inconvenience to the patients.

"In enlargements of the bones and testes, in indurations of the penis, persistent induration of the cicatrix of a primary sore, the cure is necessarily more tedious; the change of structure produced in such diseases must have time for removal: nevertheless, in these cases, which require months of treatment, under common circumstances, and which are not unfrequently considered or given up as incurable, the moist mercurial vapour will do more in a month than any other treatment in six. I have known cases of induration of the penis removed in three or four weeks, which have not shown the slightest disposition to amendment after two months of ordinary internal treatment.

"The effects of the mercurial vapour bath upon the patient vary under different circumstances. If the general health of the

patient be apparently good, and we have to control a single isolated symptom of disease, such as a primary sore, an enlarged testis, or an indurated cicatrix, and the baths be used too frequently, the patient would become a little languid, and probably a little thinner; this would be avoided by properly timing the intervals between the baths. Should the patient be labouring under general constitutional taint, and exhibit as local symptoms loss of hair, sore throat, ulcers of the nose, or skin diseases, he almost invariably gets fat under the treatment. The mouth is commonly affected, after using four or six baths, more quickly if the head be immersed, which is better; some patients can bear the head in the bath for five, ten, or even twenty minutes without inconvenience; patients vary in this particular; and it depends very much on the form of mercurial employed. The gums, when affected, are red, elevated, and tender; but the baths very rarely produce salivation.

"Some forms of constitutional syphilitic diseases more readily yield to the use of the vapour than others. Some are cured with an extraordinary degree of rapidity, and are perfectly cured, which is proved by their not having relapsed, or presented a fresh venereal symptom after many years. These forms are superficial diseases of the skin, loss of hair, superficial ulcerations of the nose and throat. Some varieties require a longer treatment, as diseases of the deeper-seated parts of the skin, some forms of ulceration, diseases of the testicles and of the bones.

"To most forms of constitutional syphilitic disease, the treatment by vapour is applicable, and beyond all doubt the most speedy, certain, and safe remedy that can be employed; yet there are some forms of disease which yield with greater rapidity than others. That which gives way with the greatest difficulty is the induration which succeeds to the healing of a primary sore. I do not mean that soft fulness which is sometimes found in such situations, but that specific induration which is met with under the skin, and which is sure, sooner or later, to end in local or constitutional mischief. I have seen cases which have resisted all modes of treatment but the baths; to these they yield but slowly, but they do yield, after other plans of treatment have been followed for months without success, or with but partial amendment.

"One or two objections have been raised to this plan of treatment by reviewers. These are easily answered, and would never have been made had those gentlemen been familiar with its practical working. The chief objection which has been raised, is that it is unmanageable, and the quantity of mercury introduced into the system cannot be regulated, and that rapid and severe salivation might occur. For more than twenty years I have administered or superintended the administration of this bath, from four to six times every day, and I have never seen one case where such an effect has been produced. I have employed it in many thousand cases.

"The analogy has been made with the dry fume, which some-

times has produced such an effect: the mixture and dilution of the vapours of mercury with common steam, and the sweating induced by the bath, entirely removes any fear of this kind, and I would stake my reputation that with proper management it cannot occur.

"I must not be understood to say that I consider or recommend the mercurial vapour bath as a specific remedy in all forms of constitutional syphilis; but I repeat, that it is the most powerful therapeutic agent in the removal of disease, and the least harmful to the constitution of the patient, of any remedy with which I am acquainted; neither am I so prejudiced in favour of this remedy as to reject the assistance of all others, which, as we shall presently see, when associated with it, under certain circumstances, produce the best effects, but which effects, I am bound to say, would not, under many circumstances, occur without the assistance of the vapour, since in numerous instances these remedies have failed in curing the disease when used alone. The profuse sweating induced by the bath prevents the accumulation of either iodine or mercury in the system, and thus contributes materially to the preservation of the constitution of the patient."

Whilst speaking thus highly of Mr. Parker's work, we do not wish it to be considered that there is no portion of it to which we take exception—for instance, when he writes as follows, we must dissent from him *toto cælo*:—

"When, at the time of conception, both parents are labouring under well-marked constitutional syphilis, there is no chance of a healthy child being born. Of course, the nature and previous duration of the disease in the parents would much modify the condition of the health of their offspring; but I cannot conceive it possible that an infant should, under such care, be born and continue healthy: neither is there much probability of treatment eradicating the taint in the infant so diseased."

First, as to the impossibility of a healthy child's being born of infected parents—this is a position that we cannot admit; it is entirely of too sweeping a nature; we could, from our own practice, multiply exceptions to this statement. We have known instances of sound healthy children being born when both parents were diseased, and seriously so. Second, as to the effect of treatment on children born diseased, we believe that there is not one who reads this article that cannot recall to memory numerous instances of such successful treatment in his own practice; those who cannot do so must have been either singularly unfortunate in their cases, or unsuccessful in their treatment.

On Minor Surgery and Bandaging, for the Use of House Surgeons, Dressers, and Junior Practitioners. By C. Heath, F.R.C.S., &c. London: Churchill. 1861. pp. 208.

An Epitome of Surgery. By J. Beadnell Gill, M.D., &c. London: Baillière. 1860. 16mo, pp. 94.

We really owe Mr. Heath an apology for bracketing his work with the production of Mr. Gill; the contrast between the two must plead our excuse. Both are small works, it is true, but beyond that they have nothing in common. Mr. Gill's epitome of surgery can be carried in the waistcoat-pocket, and may possibly be of service to the dishonest student who is taking a shot at a prize, or to the fearful victim of cram, who, with pallid face, moist with unwholesome dews, is nervously pacing the hall of the college for the weary ten minutes before his examination, and who is conscious that his well-stuffed head has sprung a leak, and that all his points and tips are oozing rapidly away—to no one else can it possibly be of service. A copious index to any of the surgical manuals beats it to fits. In these days, when manuals advance, as musicians say, in crescendo—when Druit gives way to Miller, Miller to Erichsen, Erichsen to Pirrie, and Pirrie in turn to the threatened four volumes of "all the talents"—such a return to littleness is manifestly a gross blunder on the part of Mr. Gill. In the name of common sense, if such a commodity exist, what good purpose is furthered by such productions? We had thought the days when small duodecimos contained the *omne scibile* had passed for ever; but if all other arts and sciences can be equally epitomized, our groaning book-shelves may again hope for rest. We shall give one sample as a specimen of the book:—

"Caries of Bone.—Gouge it out."

Shade of immortal Pickwick! thy oft quoted "Chops and tomata sauce," are the only parallel we know of to such brilliant and expressive brevity. But if we go on much longer, our review will exceed the book in its length; and, sooth to say, we might be better employed.

Mr. Heath's book, though small, is deserving of our highest commendation. It is addressed to house surgeons, dressers, and junior practitioners, and is a move in the right direction; for it treats plainly and briefly of the duties which such members of our profession have to perform, and shows them in simple language, and by the aid of a few plain woodcuts, what they have to do. It is just such a book as ought to be in the

hands of every member of the class to whom it is addressed. In this little work there is a real condensation, which our diffuse writers might do worse than imitate. Look, for example, at the following remarks upon hemorrhage:—

"The after-treatment of cases of hemorrhage, both as respects the wound and the general condition of the patient, is of the greatest importance. Supposing an artery to have been tied on a bleeding surface, no surgeon would think of removing the ligature on the following day; but if pressure alone has been applied to the wound, it must be still more necessary not to interfere rashly with the dressings, and so disturb the natural process of occlusion of the injured vessel. If the hemorrhage does not recur, there can be no necessity for removing the pads, &c., until they are loosened by suppuration commencing in the wound, although it may be advisable to relax the bandages (of necessity tightly applied in the first instance) after a day or two. . . . . Wounds of the palmar arch are sometimes laid great stress on, as if their treatment differed in any way from that of wounds of arteries generally. Graduated pressure properly applied and maintained, together with flexion of the elbow, may generally be relied on, provided the parts are not interfered with and the dressings disturbed too early."

While the book as a whole obtains our approval, there are some directions to which we should demur, such as the following process for the insertion of an issue, which we look upon as both painful and uncertain:—

"*Issue.*—When an issue is to be made with the *potassa fusa,* a piece of leather plaster should be laid over the part, a hole having been cut at the point where the issue is to be formed. A small piece of the potash is then to be placed on the skin, and secured in its position by a piece of strapping over it; and in a few hours, when it has done its work, the strapping is to be removed, and the part carefully cleansed, to prevent any portion of the caustic passing beyond the intended boundary."

Now, the above mode of inserting an issue is unnecessarily painful, and it is dangerously uncertain. We have heard of joints being opened by sloughs thus carelessly made, and the pain of the patient must be exceedingly severe. Our plan is either to make a sufficient wound in the skin by pinching it up and transfixing it, and then inserting a pea or two, or to apply a blister for a few hours before the issue is to be made, in order to destroy the cuticle, and remove the impediment to the rapid action of the caustic. If we use a blister somewhat smaller than our intended issue, and when the cuticle is removed, if we keep the potash in contact with the raw skin, the vitality of the part is rapidly destroyed, and the stage of

pain is quickly passed through. We are surprised, too, that no mention is made of the use of oil or vinegar to neutralize the free alkali. These are, however, minor faults; and we have much pleasure in recommending the book as a good one, in spite of such occasional blemishes.

Lectures on the Diagnosis and Treatment of the Principal Forms of Paralysis of the Lower Extremities. By C. E. Brown-Séquard, M. D., F. R. S., &c. London: Williams and Norgate. 1861. 8vo, pp. 118.

Writers not unfrequently define a science as consisting of a series of laws deduced from the observation of facts; and an art, they say, consists in the application of these laws to useful purposes. Thus, astronomy is a science, the laws of which are applied to the art of navigation. The work we now introduce to our readers reminds us of these definitions. It is an embodiment, for practical purposes, of the laws laid down in the treatise by the same author, of which we gave an analytic review in our last number, as constituting so much of the science of physiology as relates to the spinal and ganglionic nervous centres.

In proportion as a science is based on facts derived from a sufficiently extended sphere of observation, so is it perfect; and so are the laws derived from it capable of an arbitrary application to practical purposes. Thus, astronomy is one of the most perfect of sciences, and even the rudest of sailors is capable of applying its laws to the steering of his craft. Alas, for art of medicine, the science of physiology, including, under this term, not only the laws of healthy action, but *pathology*, or the laws of diseased action, and of healthy reactions under the influence of morbid stimuli, and also *therapeutics*, or the laws of the actions of the system under the influence of remedial agents—alas! we say, the science is not perfect, and we cannot yet lay down an arbitrary set of laws for the guidance of the practitioner of the art of medicine. The reasons for this are sufficiently obvious. The organs whose actions we would study are often of such a nature, their structure so delicate, and they themselves so concealed, that at the very threshold we are thwarted by the difficulty of observing and recognizing the facts on which our inductions should be based. In no department are these difficulties so great as in reference to the nervous system; yet, by the examination of the simpler forms of this, by skilfully conducted experiments, and by cli-

nical observations, carefully compared with the appearances found after death, great progress, especially of late years, has been made in this difficult branch of physiological science, and none have cultivated it more zealously than Dr. Brown-Séquard. He has gone over the whole range of facts, taking nothing for granted—he has eliminated much that was false and erroneous—he has collected many facts that had been hitherto lost or unappreciated, arranged and collated all, confirmed many doctrines, overturned others, and discovered some new ones.

Much as has been done, however, still the science of physiology is not perfect, and all attempts to lay down laws for the art of medicine must be regarded with distrust. Such attempts are doubtless useful, not only as reflecting the present state of the science, but also as forming a guide to the observation of further facts, and a clue to the unravelling of their mysteries, and the detection of their bearings and relations, In the lectures now before us such an attempt is made; they are, in fact, an epitome of the practical results the author deduces from the researches recorded in his larger work. As such, they will be highly useful; but we must not let them stop our progress, or lead us into a careless and unobserving routine.

In our last issue[a] we gave a tolerably full account of our author's researches into the physiology of the spinal cord, in which we showed, amongst other things, that he proved—

1st. That the anterior roots of the spinal nerves are truly motor, and the posterior sensitive, as suggested by Sir Charles Bell.

2nd. That the posterior columns of the spinal cord are not the conductors of sensation to the brain.

3rd. That sensitive impressions are chiefly conveyed by the central gray substance of the spinal cord, assisted in a slight degree by the anterior columns, and that it is by virtue of the connexions of the cells of the gray substance with one another, and of the white fibres surrounding them, that it conveys sensitive impressions.

4th. That the conductors of impressions either enter the central gray matter directly, or pass to it through the posterior or posterior parts of the lateral columns, or through the posterior horns of the gray matter; and in these run, both upwards and downwards, for a short distance, before joining the central gray matter.

5th. That the conductors of sensation decussate with one

[a] Vol. xxxi., page 402.

another, immediately on their entrance into the spinal cord, by the posterior roots,—the sensations from the right side of the body being thus conveyed to the brain along the left side of the spinal cord.

6th. That the conductors of sensation are diffused throughout the whole substance of the cord, except the posterior columns; and that, consequently, in cases of disease or injury of the cord, sensation persists, more or less perfectly, unless the whole substance of the cord be affected.

7th. That the orders of the will to the muscles are conveyed in *the dorsal region* by all the various parts of the cord except the posterior columns; that, in this region, the anterior columns and the gray matter between them are the most important in conveying volition, but that near the medulla oblongata the middle columns and the gray matter between them are the most important.

8th. That, in man, the crossing of the anterior pyramids in the medulla oblongata is the only decussation of the volitional fibres that takes place.

9th. That injury of the posterior columns, or of any of the white columns, does not cause anæsthesia, but that this arises from injury of the gray substance; and that injury of the lateral half of the cord causes loss of sensation on the opposite side of the body.

10th. That a class of nerves, *vaso-motor nerves*, arise from the spinal cord, and are distributed, chiefly by means of the sympathetic system, to the small arteries, supplying their muscular coat; that they do not decussate, but pass to the side of the body corresponding to the side of the cord from which they arise; that injury of these nerves causes paralysis of the muscular coat of the arteries, and consequent dilatation of these vessels, admitting an increased quantity of blood. The increased supply of blood causes increased activity of the sensitive nerves, or hyperæsthesia; and thus we have, as a result of division of a lateral half of the spinal cord, loss of voluntary motion on the same side, hyperæsthesia of that side, and loss of sensation, with retention of voluntary motion on the opposite side.

The concluding chapters of this work, which the space at our command did not permit us to notice in our last number, contain some further and interesting remarks on the subjects already referred to, and observations on the influence of the sympathetic nerve on the organic functions, more especially on the circulation and nutrition, the consideration of which is necessary for the due comprehension of the practical treatise we

are about to review. It is shown that, whereas division of the sympathetic trunks causes paralysis of the muscular coats of the small arteries, permitting these vessels to yield to the pressure of the blood, dilate, and allow an increased quantity to pass through them, thus producing increased vascularity, an elevated temperature, and increased secretions, stimulation of the trunk of the cut nerve produces contraction of the blood-vessels, and a recession of the other phenomena, which return, however, on the ceasing of the stimulation. The increased circulation and other phenomena have been found to remain for indefinite periods after the division of the nerve; in fact, for as long as the animals have been permitted to live. Though Brown-Séquard thus impugns Claude Bernard's *vitalistic* theory, as to the mode of the production of these phenomena, and attributes them, in the first instance, as we have explained, to the paralysis of the arteries, he admits that the increased nutrition of the tissues, consequent on the increased flow of blood, reacts on the circulation, causing a still further activity of it; so that, arising from the division of the sympathetic nerve, we have, along with other effects—1st, dilatation of blood-vessels; 2nd, greater afflux of blood; 3rd, elevation of temperature; 4th hyperæsthesia; 5th, increase of the vital properties of muscles and motor nerves—all of which may be reversed by galvanization of the nerve.

It appears, moreover—and this is of great importance—that the *vaso-motor nerves* are able to act when directly excited; and, more important still, that they are able to produce contraction of the blood-vessels by a reflex action. The contractions produced in either mode are sometimes of a spasmodic character, and may either persist for days, or relax and contract alternately. The powers thus exercised by the sympathetic nerve do not, however, belong to it *per se*, but are derived, probably entirely, certainly for the most part, from the spinal cord, through the communicating branches, division of which, it has been shown by Dr. Waller, produces the same effect as division of the trunk and branches of the sympathetic.

The influence of the nervous system on the organic functions, as well as upon contractile tissues, may take place in consequence of irritations of—1st. Centrifugal nerve fibres; 2nd. Of nervous centres; 3rd. Of centripetal or sensitive nerve fibres; and the effects may be three-fold—1st. A contraction of muscles, or of any kind of contractile tissue; 2nd. A secretion; 3rd. A change of nutrition in some part of the body.

Reflex changes in nutrition ought to be known as being

among the most frequent causes of many diseases. An irritation starts from an excitable part of a nerve; it reaches the nervous centres, and thence being reflected to a more or less distant part of the body, it produces either contraction of a blood-vessel, and through this effects a diminution of nutrition, or it acts directly on the tissues, and produces an alteration of the interchanges between them and the blood. The disease produced in one eye-ball by the irritation located in the other is a familiar example of this action. In like manner the action may be direct; for as a great many of the vaso-motor nerve fibres go up to the brain and to the cerebellum along the spinal cord, the medulla oblongata, and the pons Varolii, the diseases or injuries of these parts, besides symptoms concerning sensibility and movement, present symptoms depending on irritation or paralysis of the vaso-motor nerves.

We now pass to the more immediate consideration of the work, whose title stands at the head of this article. It consists of four lectures, which formed a part of the courses delivered in April and May, 1859, in Dublin, Edinburgh, and Glasgow. Their principal object is to point out the extreme importance of a clear diagnosis of the various forms of paralysis of the lower limbs, and especially of the two most frequent and distinct forms, viz., the *reflex paraplegia*, and that due to *myelitis;* the importance of the diagnosis arising from the difference in treatment required for the two affections, the remedies beneficial in the one form being highly injurious in the other. *Reflex paraplegia*, or that form (first described by Dr. Graves) in which the paralysis of the lower limbs is due to an excitation that has come to the spinal cord from a sensitive nerve, is first considered: the excitation, after having reached this centre, being reflected either on the blood-vessels of the cord, or on those of the motor nerves, or of the muscles. Drs. W. Gull, Nasse, and Valentiner, have lately tried to throw doubt on the existence of this form of paraplegia; but Dr. Brown Séquard thinks the large number of facts recorded by various writers, or observed by himself, renders such a discussion almost useless. However, he states the following propositions and characteristics of the disease, and proceeds to the proof:—

"I will endeavour to show—

"1st. *That a paralysis of the lower limbs may be caused by an alteration in the periphery or the trunk of the various sensitive nerves.*

2nd. *That this kind of paralysis differs extremely from the other kinds of paraplegia by many symptoms, and by the frequency and rapidity of cure.*

"The first of these two propositions can easily be proved by the very facts which serve to ground the second, and especially those facts in which a sudden or a very rapid cure followed the removal or cure of the alteration of a nerve, which was considered as the cause of the paralytic affection. It is evident that such a rapid cure could not take place in cases of paraplegia depending upon a disease of the spinal cord or its membranes. We will, by and by, relate several cases of rapid or immediate cure of paraplegia; and, amongst others, one recorded by Romberg, in which the paralysis which seemed to be due to a prolapsus uteri was very rapidly cured after the womb had been replaced in its normal position; and another mentioned by Graves, in which a paralysis of the lower limbs, due to a spasmodic stricture of the urethra, was almost immediately cured by the dilatation of this canal.

"The following characteristics of reflex paralysis, either in the lower limbs or elsewhere, tend to show how distinct this kind of affection is from cases of paralysis depending upon an evident organic alteration of the nervous centres:—

"1. An outside excitation, starting from some sensitive nerve, exists before the reflex paralysis appears.

"2. The variations in intensity of the outside excitation are often followed by corresponding variations in the degree of the reflex paralysis.

"3. When the outside excitation ceases altogether, the reflex paralysis also sometimes ceases altogether, and in a short time.

"4. The various modes of treatment of paralysis are usually unsuccessful in cases of reflex paralysis so long as the outside excitation persists.

"5. Post-mortem examinations in cases of reflex paralysis show that this affection does not depend upon any marked organic alteration."

He then argues that, even if there were not cases enough to show the existence of reflex paraplegia, the occurrence of reflex paralysis in the upper parts of the body renders it at least probable that the same may occur in the lower limbs. He quotes many examples of this—as paralysis of the optic nerve (amaurosis) from injury to the frontal nerve, in many cases of which a rapid cure has been effected by dividing the frontal branch between the irritated spot and the centre, thus abolishing reflex action—paralysis of the hand, arm, or muscles of the face, from various irritations of distant sensitive nerves, as from teething, worms, disease of the womb, diphtheritis, &c., and then proceeds to relate cases of reflex paraplegia, which he sums up as follows:—

"The above cases, and many others which we could mention, show that the production of paraplegia may be associated with irri-

tations starting from very different parts—such as most of the viscera, the skin, the mucous membranes, and the trunks of nerves. In all these cases we find that paraplegia has followed the outside irritation, which we consider as its cause, and that the cure of this paralysis has been more or less quickly obtained after the supposed outside cause had been suppressed. Besides, in many of these cases we find the supposed effect increasing or decreasing gradually, in correspondence with the outside irritation, and in several instances we find that even without treatment the paralysis disappeared after the cessation of its supposed cause; while, as a general rule, no treatment of the paraplegia seemed to have the least influence so long as the outside irritation was not alleviated, or had not entirely ceased. In some cases we find that paraplegia appears and disappears altogether, twice, or many more times, in correspondence with the renewed production and cessation of the outside irritation. Can there be more decisive proofs that it is the outside irritation starting from some sensitive nerves in various parts of the body which produces the paraplegia ?"

It has been objected that the paralysis may have arisen in these cases from other causes than those assigned, such as local pressure on nerves, or blood-poisoning; and after examining these objections, and showing their inconsistency with the facts, the author proceeds to inquire into the mechanism of the production of the paralysis, after which he shows that it is not due to an evident organic affection which may be found on a *post-mortem* examination:—

"I have now to examine the objection that it is impossible to understand how a paraplegia can be caused by a reflex action. It is, indeed, very easy to show how a paralysis can take place by a reflex influence through an irritation starting from a sensitive nerve. There are two modes of reflex action by which such an irritation can produce paraplegia:—

"1st. *Reflex Contraction of Blood-vessels.*—As it is now well established that blood-vessels contract with energy, and sometimes even are seized with a real and prolonged spasm, whether by a direct influence of their motor nerves, or through an excitation, which, from some centripetal or excito-motor nerve, has been reflected upon them by the cerebro-spinal axis, there is no need of showing here that blood-vessels are just like muscles of animal life as regards their relations with the nervous system. This being the case, it is extremely easy to understand how a paralysis of the lower extremities, as well as that of any other part of the body, may be paralyzed by a reflex action. In three different places a contraction of blood-vessels may cause paraplegia—1, in the spinal cord; 2, in the motor nerves; 3, in the muscles. A contraction of blood-vessels in the spinal cord *I have seen* (in the vessels of the pia-mater) taking place under my eyes, when a tightened ligature was applied

on the hilus of the kidney, irritating the renal nerves, or when a similar operation was performed on the blood-vessels and nerves of the suprarenal capsules. Generally in those cases the contraction is much more evident on the side of the cord corresponding with the side of the irritated nerves, which fact is in harmony with another and not rare one, observed first by Comhaire (as regards the kidney), and often seen by me after the extirpation of one kidney or one suprarenal capsule—i. e. a paralysis of the corresponding lower limb. It is probable that irritations starting from the urinary and other organs produce a paraplegia by a contraction rather of the blood-vessels of the spinal cord than of those of the motor nerves and muscles. However, in this form of paraplegia, it is not rare that a notable diminution of temperature of the paralyzed limbs shows that the blood-vessels of these parts are also contracted.

"2nd. *Morbid Reflex Influence on Nutrition.*—This influence, proved by many experiments on animals and by pathological facts of daily occurrence, seems usually not to exist in reflex paraplegia, except in that form in which muscles become progressively and rapidly atrophied and altered (*wasting palsy*). But this morbid influence may take place at any moment in the course of a reflex paraplegia, so long as the irritating cause has not ceased to act, and a myelitis or some other affection may be generated by it."

The contraction of the blood-vessels, and consequent insufficiency of the nutrition of the nerve centres, is the important distinguishing feature in the pathology of this form of paralysis, and the successful treatment of such cases must depend on the true apprehension of this fact. The diagnosis of reflex paraplegia is represented by the lecturer as clear and precise. He begins with reflex urinary paraplegia, contrasting its symptoms with that from myelitis in a tabular form, and then reviews the other forms of the disease, showing the principles on which the diagnosis should be formed,—observing at the same time that we should not expect in this or any of the diseases of the nervous system to find all the characteristic symptoms together. A reflex paraplegia is almost sufficiently characterized, he says, by the absence of the special symptoms of an organic disease of the spine or its contents, and the existence of an incomplete paralysis of the lower limbs that has appeared somewhat slowly after a disease of the urinary or genital organs, or of some other abdominal viscus; after an inflammation of the lungs or pleuræ; or after some kind of an irritation of a nerve in its trunk or cutaneous ramification:—

"*Urinary Paraplegia.*	"*Paraplegia from Myelitis.*
1. *Preceded* by an affection of the bladder, the kidneys, or the prostate.	1. Usually no disease of the urinary organs except as a *consequence of the paralysis.*

2. Usually lower limbs alone paralyzed.	2. Usually other parts paralyzed besides the lower limbs.
3. No gradual extension of the paralysis upwards.	3. Most frequently a gradual extension of the paralysis upwards.
4. Usually paralysis incomplete.	4. Very frequently paralysis complete.
5. Some muscles more paralyzed than others.	5. The degree of paralysis is the same in the various muscles of the lower limbs.
6. Reflex power neither much increased nor completely lost.	6. Reflex power often lost, or sometimes much increased.
7. Bladder and rectum rarely paralyzed, or at least only slightly paralyzed.	7. Bladder and rectum usually paralyzed, completely or nearly so.
8. Spasms in paralyzed muscles extremely rare.	8. Always spasms or, at least, twitchings.
9. Very rarely pains in the spine, either spontaneously, or caused by pressure, percussion, warm water, ice, &c.	9. Always some degree of pain existing spontaneously, or caused by external excitations.
10. No feeling of pain or constriction round the abdomen or the chest.	10. Usually a feeling as if a cord were tied tightly round the body at the upper limit of the paralysis.
11. No formication, no pricking, no disagreeable sensation of cold or heat.	11. Always formications, or pricking, or both, and very often, sensations of heat or cold.
12. Anæsthesia rare.	12. Anæthesia very frequent, and always, at least, numbness.
13. Usually obstinate gastric derangement.	13. Gastric digestion good, unless the myelitis has extended high up in the cord.
14. Great changes in the degree of the paralysis corresponding to changes in the disease of the urinary organs.	14. Ameliorations very rare, and not following changes in the condition of the urinary organs.
15. Cure frequently and rapidly obtained, or taking place spontaneously after a notable amelioration or the cure of the urinary affection.	15. Frequently a slow and gradual progress towards a fatal issue; very rarely a complete cure.

The treatment of reflex paraplegia resolves itself into two parts—1st. The means to be used against the external cause. 2nd. The treatment of the paralysis itself. The first indication may be attempted in two ways—either by the use of sedatives and narcotics, belladonna singly, or in conjunction with opium, being best for the purpose; or by excitants and revulsives applied to the skin, as recommended by Graves, and which Dr. Brown-Séquard supposes to act by exhausting the irritability of the muscular coats of the small vessels, and thus causing them to relax, dilate, and admit more blood. At the same time, all possible means for increasing the quantity of blood in the spinal cord are to be adopted,—the great principle being always kept in view, that in reflex paraplegia the vessels are contracted, and the quantity of blood in the nerve-centres is too small. To supply this indication, the patient should lie with the spine placed lower than the head, the arms, and the legs, so as to let the blood gravitate towards it. Such food should be given as would best increase the quantity of blood, and improve the nutrition of all parts of the body, and such medicines as have the effect of augmenting the vital properties of the spinal cord, in increasing the amount of blood in it. Strychnia is the principal remedy of this class: according to Brown-Séquard, it acts in an especial manner in increasing the quantity of blood in the spinal cord, and at the same time augmenting the vital properties of this centre. Sulphur internally, recommended by Graves, and sulphuret of potassium, in baths, have also often a very beneficial effect in these cases. The second indication is to be fulfilled by exercising the limbs either by galvanism, shampooing, or, where any voluntary power remains, exercising it freely, and thereby preventing the atrophy of the muscles which is so apt to occur.

The third lecture is on the diagnosis and treatment of paraplegia due to *myelitis*, *meningitis*, and *simple congestion*. As in reflex paraplegia the essential pathological feature is the diminished quantity of blood in the nerve centres, here it is the increased quantity that we have to cope with. These affections are so much more generally known than the reflex paralysis, that we do not purpose dwelling on their symptoms and diagnosis; indeed, we have already given a summary of these in the tabular rules for diagnosis that we have extracted, so we content ourselves with referring those who wish to examine them more closely to the work itself, where they are very fully discussed.

The treatment recommended by Dr. Brown-Séquard for these affections is founded on a strictly physiological basis;

and he asserts that, when fairly carried out, the prospects of curing the disease are much more encouraging than they have hitherto been considered. The great indication is to lessen the quantity of blood in the spinal canal. This is to be done first by position, the patient being made to lie on the face if possible, certainly off the back, and have the arms and legs covered with flannel and placed on a lower level than the spine, for the purpose of attracting blood to them. 2nd. Applications should be made to the spine of those means that may attract blood outside the spinal canal as often as possible; the best for this purpose being the warm douche and dry cupping.

In addition to these means, Dr. Brown-Séquard recommends the use of ergot of rye, belladonna, and iodide of potassium internally; of these he speaks very highly; he claims to have discovered the mode of action of the first two, and to have established the principle that should guide us in determining whether to use them or strychnia, concerning the choice of which our decisions had hitherto been little but the result of caprice or accident. Ergot and belladonna, he asserts, stimulate the muscular coats of the blood-vessels to contract, and consequently diminish the quantity of blood passing through them—ergot acting on the spinal cord in an especial manner, but having the opposite effect to strychnia, inasmuch as it diminishes the quantity of blood in this centre, while strychnia increases it. He begins the treatment with the ergot in five or six grain doses three times a day, and after some time combines quarter-grain doses of extract of belladonna with it. The iodide of potassium is specially useful where there is meningitis, but may be employed with advantage in the other forms.

The second rule of treatment is to prevent the formation of sloughs, or to cure them when formed, and to prevent the other alterations of nutrition in the paralyzed parts. We extract the directions as to the treatment of sloughing. We have been informed that, when Dr. Brown-Séquard was in Dublin, some cases of this formidable complication of disease of the spine were placed under his charge in one of our large hospitals to try this mode of treatment; and that, notwithstanding the plan was carried out under his own superintendence, it completely failed to arrest the sloughing:—

"1st. Ulcerations and sloughs on the nates, the sacrum, or other parts, may be prevented or stopped in their development, if they have not acquired a great extent, by very simple means, which I have found perfectly successful in experiments upon animals. Led by the view that sloughs are chiefly due to an irritation of the vaso-

motor nerves, producing alterations in the nutrition of certain parts of the skin, I have thought that alternate applications of cold and heat to the parts where there is a threatening of sloughing, by acting upon the blood-vessels, so as to produce in them considerable contractions and dilatations, might prevent the effects of the irritation of the vaso-motor nerves in the spinal cord; and the success I have obtained shows that this view is probably quite right. The means I propose is the alternate application of pounded ice in a bladder, and a warm poultice, the ice to be left ten minutes, or even less, and the poultice an hour. It is in cases of fracture of the spine, followed by myelitis, that I have employed these means; but hitherto only on animals. I hope surgeons will soon decide what is the real value of this means in man."

The fourth lecture is on the symptoms and treatment of the various forms of paraplegia due to *white softening*, *hemorrhage*, *tumours*, &c., and concludes with a valuable review of the nature and bearings of the symptoms of paraplegia. It does not seem necessary, after the very full analysis we have given, to enter on these subjects.

We have already expressed our estimation of the labours of Brown-Séquard; he has been a zealous, faithful labourer in the domain of physiology; and now, by the establishment of the difference between reflex and the other forms of paraplegia, and of the mode of action and the true indications for the use of the remedies to be used in these affections, he has, even though experience may not confirm all that he has said, conferred an inestimable benefit on the art of medicine.

Elements of Medical Zoology. By A. MOQUIN-TANDON. Translated and Edited by ROBERT THOMAS HULME, M.R.C.S. London: Baillière. 1861. 8vo, pp. 423.

IT must occur sometimes to one who has entered upon the study of medicine, with a full purpose of applying himself diligently to the cultivation of the various branches of science included within this term, in its modern acceptation, that, numerous as are the difficulties which beset his path, and tend to prove a temporary obstruction to his progress along one or other of the many avenues of knowledge, there is no difficulty, perhaps, more embarrassing than the inability which is often experienced of ascertaining readily where the required information upon any particular subject may be best and most fully obtained. There are, it is true, many valuable works in the form of dictionaries or encyclopædias, in which is contained

everything that a student may require; but, unfortunately, this very repletion is an inconvenience, inasmuch as several matters which one may desire or expect to find grouped together as being medicinally similar, analogous, or allied, become of necessity, owing to the mechanical requirements of an alphabetic or artificial arrangement, dissociated and dispersed throughout the work, and, to a certain extent, concealed from view; nor does such an objection apply solely to works constructed upon an arbitrary and unconnected plan; on the contrary, many instances could be adduced in which the most simple and natural, and therefore the most scientific, arrangement of material, however complete and comprehensive, is attended with some inconvenience to one who consults such a work with a view of obtaining practical information of a specific kind. As far as relates to the objects of medical interest furnished by two of the kingdoms of nature, the difficulties above alluded to have been, in a great measure, obviated; while, with regard to those of the third, or animal kingdom, we have been hitherto much in want of a work such as that now presented by M. Tandon. In books on the materia medica we find descriptions of such animals as are employed medicinally, or are capable of furnishing secretions endowed with properties of therapeutic value; these animals, and animal products, however, amounting altogether to not more than eighteen or twenty, constitute but a small section of medical zoology; accordingly, with a view of supplying the student with a clear and comprehensive description of *all* those portions of zoology which have any bearing upon medical science, the work now under consideration appears to have been compiled. With regard to its general plan, the author has deemed it advisable to depart from a purely zoological arrangement. Such a plan, he observes—

"Undoubtedly possesses the advantage of imparting to such works a more scientific and less arbitrary arrangement; but, nevertheless, it has also certain disadvantages; it subordinates the medical zoology too much to zoology proper, and deprives it of that professional spirit which should govern all the studies of either a medical or a pharmaceutical school. A writer on medical zoology, who arranges his chapters according to the 'animal kingdom' of Cuvier, for example, will be compelled to speak of the quadrumana, and of the lepidoptera, merely because these animals constitute two important divisions in the zoological series. But the medical practitioner, and the pharmaceutist, make no use of either monkeys or butterflies. If, on the other hand, the writer adopts a zoological plan, but omits those divisions or families in which the medical practitioner

has no direct interest, his arrangement becomes disconnected and incomplete, and ceases, in fact, to be an arrangement. Again, there are animals distinguished from each other by their characters and structure, which the zoologist places in different groups, often far apart, but which the medical practitioner, on the contrary, brings together for the purpose of studying them collectively, in consequence of the organs they inhabit, the diseases they give rise to, or the remedies they require. Such is the case with the *internal parasites*, animals which are dispersed throughout the system of the zoologist, but which are associated in the works of medical authors."

The first part of the work is devoted to the natural history of man, or anthropology. Commencing with the general character of man, and having given a brief sketch of his anatomy, the author takes occasion to introduce some very useful and valuable statistical tables with reference to the principles of life insurance, and other matters of medico-legal interest. In considering the question of the unity of the human species, he passes in review the several opinions and theories which have been advanced upon this subject, from those of Linnæus, who admitted but two distinct species, to those of Bory St. Vincent, who has attempted to establish no less than fifteen. He concludes his dissertation on this subject by simply regarding man as a single species of a single genus; admitting, nevertheless, the existence of numerous distinctions between the various nations by which our globe is inhabited, and of hereditary peculiarities, which are more or less permanent; these modifications, as a matter of convenience, are designated by the title of *races;* and thus, while still maintaining the unity of the *species*, the existence of a subdivision of this species into *varieties* is recognized.

Having concluded the examination of the principal characters of our species, its perfection, its accidental degradation, its unity, its races, and the manner in which it has been classified by various writers, the author draws, as it were, a broad line, placing man,—the highest and ultimate term of creation,—upon the summit of the living pyramid; while beneath this line is the remainder of the animal kingdom, if remainder it can be called, inasmuch as man truly constitutes a separate kingdom, wherein there is but one genus and one species.

The second part of the work is occupied with the consideration of medical zoology proper. It commences with a summary of the organization, and of the several classifications of animals. The ancient system, or that which prevailed from the time of Aristotle, is first examined; this is followed by an

account of the first attempt at the establishment of a rational classification of the animal kingdom; and here the translator comes forward on behalf of the memory of our illustrious countryman, Ray, to claim for him the merit which M. Tandon has ascribed to Linnæus. He says—

"Although his actual classification has been superseded by others, yet Cuvier, in his 'Histoire des Sciences Naturelles,' vol. ii., p. 454, after describing Ray's arrangement of the mammalia, says—'In this classification we meet with the germs of all those which have been made since. Linnæus, especially, has taken nearly all his characters from those which Ray had pointed out. . . . We are indebted to Ray as the pioneer and model of all the classificators who have succeeded him, so greatly was he endowed with the spirit of method.'"

The Linnæan classification, which was at once simple, scientific, and convenient, was, however, not altogether free from objections and defects; nevertheless, it served the purposes of the zoologists for a long time, until at length Lamarck, who took as his basis the absence or presence of the skeleton, and the structure of the nervous system, divided animals into *invertebrata* and *vertebrata*. The latter of these, corresponding to the first four classes of Linnæus, has continued to hold its place among the permanent acquisitions to science.

The classification of Cuvier, which succeeded to that of Lamarck, is next examined; and after that, the several modifications which have been introduced into the Cuvierian distribution by the investigations of modern anatomists and systematists. A clear and concise *resumé* of the principal features which characterize the present state of knowledge upon this subject, brings to a conclusion this portion of the work. The historical sketch which is here exhibited of the gradual development and advance of a more scientific system of distribution, in place of the ancient arbitrary mode of classification, as applied to the animal kingdom, is full of practical interest; and will be appreciated by those who desire to obtain a clear and distinct notion of the subject, without having the trouble of consulting and comparing more elaborate treatises.

In describing the various animals, and their productions which have some bearing upon the science of medicine, the following arrangement has been adopted, viz.:—1st, Animals and the animal products employed in medicine: of the substances referable to this category, modern physic does not recognize very many; the author, however, has prefaced their description by the introduction of a chapter on the therapeutic

agents which belonged to the ancient medical zoology, but whose employment has become obsolete. 2nd, Noxious animals, but which are not poisonous, nor yet parasites, to wit, those in which there is no special gland for the secretion of a poison, and which are not permanent inhabitants either of the interior or of the exterior of our bodies. 3rd, Poisonous animals; among such are enumerated all those that are provided with special glands for the secretion of the poisonous fluid, and with an apparatus for its transmission. The author has adopted a subdivision into those which transmit the poison by means of their mouth, and those which are provided with a special apparatus for the purpose. 4th, External parasites, or *epizoa*. And 5th, Internal parasites, or *entozoa*.

Having indicated the broader bearings of the work before us, and given some idea of its general scope, we proceed to make a few *excerpta*. Opening the volume at page 71, we find the following description of the cochineal insect:—

"The cochineal is an insect belonging to the order Hemiptera, the tribe Homoptera, and to the family Gallinsecta. They constitute the genus *coccus* of Linnæus; they are characterised by a pectoral beak, an abdomen terminated by setæ, and by the presence of two wings in the male—none in the female.

"The common cochineal was employed in medicine, and in the arts, long before its true nature was ascertained. It was supposed to be a small berry or grain, known as *shining grain*. Pomet said (1694), that the Spaniards exposed them to the action of heat, so that the young should not become developed in France. Lopez de Gomara, in 1525, gave the first description of this insect, and of the plant on which it fed. Thierry de Menonville, in 1787, published an excellent treatise on the cochineal. Réaumur has given some details respecting the generation and metamorphoses of those species which are met with in France.

"*Habitat.*—The cochineal of commerce is found in different parts of Mexico. It lives on several species of *Nopal*, particularly on the *common*, the *cochineal-bearing*, and the *tuna* species.

"*Description.*—The cochineal of the Nopal is a small insect. The male and female are not alike, and might be supposed to belong to different genera. It has even been stated that the individuals which had been taken for the male were parasites. The body of the male is elongated, short anteriorly, narrowed behind, and of a deep red; the head is small, with a rudimentary beak; the antennæ are of moderate length, filiform, and composed of eleven joints. The abdomen is terminated by two setæ, longer than the body, diverging, and very slender. The wings reach beyond the abdomen, and cross each other horizontally on the back; they are oblong, and perfectly transparent. The limbs are long, with a single joint to the

tarsus, terminating in a hook. The animal is quick and active. The female is at least twice the size of the male; the body is oval, obtuse anteriorly, slightly attenuated behind, convex above, and flat below. It has ten distinct rings, of a brown colour, covered with a white powder. It is provided with an extremely narrow, slightly conical, and very pointed rostrum, from three to four lines in length. The abdominal setæ are shorter than the body. The limbs are small, and the animal very slow.

"The larval stage in both sexes does not last more than ten days; that of the pupa fifteen. As soon as he is born, he seeks the female; and as soon as impregnation is accomplished, he dies. The female lives a month longer, and during this time her abdomen becomes considerably enlarged. When the period for laying the eggs has arrived, she fixes herself to the plant. The eggs remain adherent to the under surface of the body, so that the laying is hardly evident externally. As the abdomen empties itself, its inferior parietes approach the upper, and thus form a considerable cavity below. Very soon the parent insect dies; her abdomen dries up, the skin becomes hard and shrivelled, and serves as a kind of shell for the protection of her offspring.

"The eggs are from 250 to 300 in number, and are united into a narrow band; they are oval, of an intense red colour, and are covered with a farinaceous secretion. They are hatched in a few days. The larvæ issue from beneath the dried-up remains of the parent by an opening at the posterior part, and spread themselves over the nopals. During the first days of their existence they traverse the tenderest parts of the plants, and seek out a suitable spot to attach themselves to. Having decided upon this, about one-third of the individuals cover themselves with a white powder, which assumes the form of a cocoon open at one end; beneath this covering the larva becomes transformed into a chrysalis, and then into the perfect insect. The abdominal setæ soon make their appearance through the opening previously mentioned, and the animal comes out backwards; these are the males. The other two-thirds are the females, whose bodies daily increase in size, while the males flutter around them, or walk over their backs."

Among the blistering insects, nine genera are named; and of these, four, namely cantharides, mylabra, cerocoma, and meloë, are fully described; the remainder, being of less importance, are omitted. The following remarks on some matters connected with the operation of cantharides are appended to the history of this insect:—

"Is the cantharidin distributed indiscriminately throughout all parts of the animal? Hippocrates considered that the antennæ, the head, the wings, and the feet, are inert, and recommended that they should be rejected. Schwilgue has revived this opinion. Linnæus, on the contrary, maintains that the vesicating property resides nearly

equally in every part of the insect; H. Cloquet and Audouin are also of this opinion. M. Farines, however, has stated that a blister made from the powdered antennæ, elytra, wings, and feet, after being applied for thirty hours, produced no effect. M. Berthoud in some recent experiments found that 3858 grains, troy (250 grammes), of the thorax and abdomen, which he terms soft parts, yielded 6·5 grains of cantharidin; and that 1929 grains (125 grammes) of the antennæ, heads, elytra, wings, and feet, which he terms *corneous parts*, yielded ·817 grain, which is in the proportion of 4 to 1.

"Do *cantharides* lose their vesicating properties by age? Foster assures us that when these insects have fallen into the condition of dust, their remains have no action. Dumeril, on the other hand, has successfully employed cantharides which had been preserved for twenty years. We must not suppose, as some pharmaceutists have done, that the active principle of these insects is not eaten by their parasites; if this were really the case, the cantharides which had been attacked by them, instead of losing their qualities, would, on the contrary, become more active. Observation shows that the excrement and remains of these parasites have no vesicating properties; and as they become mixed with the fragments of the cantharides, the refuse which remains in the bottles can have but a very slight action. According to M. Farines, the properties of the dust of the worm-eaten cantharides, compared with the ordinary powder, diminish in the ratio of 7 to $10\frac{1}{2}$. On the other hand, Robiquet, M. Guibourt, and Virey, in analyzing this dust, have found but a very small quantity of cantharidin. M. Berthoud obtained 1·45 grain of cantharidin from 1929 grains of dust; that is, about three-fifths the quantity which would be furnished by the same weight of sound cantharides. It is therefore evident that the remains of the worm-eaten insects would not be altogether inert. M. Limousin-Lamotte announced to the Pharmaceutical Society of Paris, that blisters made from the worm-eaten remains had acted well; this statement was strongly contested, but was subsequently confirmed by M. Dubuc."

The enormous consumption of medicinal *leeches*, and their increasing scarcity, have suggested many ingenious methods of artificially rearing these animals. Instances of failure, however, are but too numerous, and the difficulty of preserving them in a state of health and activity is well known,—the losses which the leech-dealers have sustained during some seasons being very considerable. In the Gironde and some other districts of the southern departments of France, hirudiniculture has attained some commercial importance. The plan which is there adopted appears to be very simple:—

"The leeches are placed in large artificial marshes, in which the water is always kept at a uniform level. Care is taken to place a supply of clay or of peat at the bottom and on the margins. Aqua-

tic plants are also provided for the purification of the water, and on which the leeches can rub themselves or take refuge.

"M. Vayson, of Bordeaux, has recently suggested a small domestic marsh, (a *vaysonier*), which will be exceedingly useful to the pharmaceutist, and to persons who are desirous of raising leeches on a small scale. This apparatus consists of a common earthen vessel, having the form of a truncated cone reversed. The lower part is perforated by a number of holes, but not so large as to allow of the leeches passing through them; the vessel is then filled with peat earth, and a number of leeches are placed upon it, which embed themselves in the earth. The upper opening of the vessel is then covered up with a piece of coarse canvas. When it is desired to send the leeches to a distance, the earth is made as damp as possible, and the vessel is packed in a box or wicker basket. When it is only wanted to preserve the animals, the lower part of the vessel is placed in water to the depth of about four inches, and the creatures are left to themselves. In consequence of the infiltration, the lower layers of the peat are soon saturated with water, while the upper portion is almost dry. The leeches know perfectly well how to choose, between these two extremes, the layer which is best adapted for them, and form in it galleries in which they live, grow, and produce their cocoons. The *vaysonier* will answer both for the preservation, the conveyance, and reproduction of the leeches."

In looking into the chapter on *milk*, we find that of the cow stated to possess usually a density of 1·0324, while the proportion of normal water is said to be 885 per 1000. Now, in a great many experiments which we have performed upon this fluid, we have found the density very rarely to exceed 1·031, the average being 1·028, while the per centage of water averages 87. We have also invariably found that pure new milk of a higher density than 1·031 showed upon analysis a per centage of water lower than 87, never higher. In all experiments upon milks suspected to have been adulterated, it is well to be in possession of a proper standard with which to compare the specimen to be examined; the specific gravity, however, of ordinary new milk enjoys a range of several degrees, namely from 1·026 to 1·031, and the dealers of this country are quite aware of the fact that the addition of warm water to the *freshly drawn* milk, while it has the effect of lowering its density several degrees, operates also by enabling the milk to throw to the surface a considerable amount of cream in a short space of time, so that by the time the fluid has cooled to the ordinary temperature, a large portion of this supernatant cream admits of being skimmed off, and by that means the original density of the pure fluid is *restored*. The "milk" is then ready for market. It is plain, therefore, that the hydrometer, although recommended

in so many books as a means of testing the purity of milk, must fail to detect the double fraud which is practised. The author describes an ingenious milk-instrument invented by M. Donné, which is in fact a means of measuring the translucency of the fluid submitted to examination.

"Unfortunately," he says, "for the accuracy of the lactoscope, the opacity of the milk does not depend only upon the fat globules, but also upon the caseine held in solution; it depends also upon the various substances which are introduced by the dealers."

Notwithstanding this objection of the author to the instrument of M. Donné, we are disposed to look upon the transparency test as the best which has been yet devised,—the principal, and save in very rare instances the only, adulteration practised in this country being that which we have described above.

Fish-oil has gradually become so very important an article in pharmacy, and so valuable an adjunct in the treatment of many diseases, that we offer no apology for transcribing, *in extenso*, the following account of cod-liver oil, its varieties, and their mode of preparation:—

"The three varieties are:—1. The *white;* 2. The *brown;* and 3. The *black.* The first is the colour of Madeira wine, or of a golden yellow, and has little or no odour. The second has the colour of Malaga wine, or is of a pale brown; the odour is more strongly marked, and its consistency is thicker than that of the first. The third is of a clear chocolate or dark brown colour, and is still thicker than the second.

"The white oil is that which is obtained first, by simply allowing the livers to drain in tubs pierced at the bottom with a number of holes, or provided with stopcocks, or they are placed in a kind of cage whose sides are formed of coarse linen cloth; the quantity which is procured of this kind of oil is equal to about half the weight of the livers employed. The blood and other impurities sink down, and the oil floats at the top.

"The brown oil is that which is separated afterwards, when the substance of the liver is beginning to decompose. The separation of the oil is sometimes hastened by pressure.

"The black oil is that which is obtained by boiling the livers in water, and by pressing out all the oil that remains in the putrid mass from which the two previous kinds have been extracted.

"All these oils have undergone more or less fermentation, and in the latter case the oil has also been subject to the influence of heat.

"In commerce, there is a fourth quality of the oil, called in England the *pale,* and in France the *white.* This variety has a yellow tinge, of the colour of champagne; it has very little odour or taste. It is the spontaneous production of the first stage of decomposition which the livers undergo at the ordinary temperature of

the atmosphere, between the time of the fishing and the operation of extracting the oil. There is sometimes an interval of several days, which is a sufficient time for the commencement of decomposition.

"It is only within these few years that these four kinds of oils, especially the first three, have been met with in a pure state in the shop of the druggist. They are now clarified and decolorised by chemical processes, rendered more limpid and less nauseous, part of their characteristic odour being removed, and probably at the same time some of their properties; they are also mixed with other oils. The consequence of this is, that many of the white or blanched oils of commerce are of very slight medicinal value.

"Dr. Fleury has justly observed that all the processes of extraction which have been just mentioned depend upon the putrefaction and fermentation of the livers, and that this is the source of the dark colour, the nauseous odour, and repulsive flavour of the oil. He has therefore proposed a new method of preparation, which yields an oil that is clearer, has less smell, and is better flavoured, and, above all, produces it in greater abundance. This method consists in taking the fresh livers, washing and then draining them, and putting them in a pan, in which they are submitted to the action of a hot water bath. In about twenty minutes the oil begins to swim at the top. The operation lasts about three-quarters of an hour. There remains in the pan a quantity of refuse, which is strained through a flannel or coarse cloth; this part of the process may be aided by gently pressing the strainer.

"Mr. Hogg also prepares an oil from the fresh livers, but he employs a vessel with a double bottom; and instead of hot water, he heats his apparatus by means of steam. His oil is paler, more limpid, more transparent, and of a lighter yellow than that which is called *white* oil. It has the smell of the fresh fish, and has scarcely any taste. It is known as Hogg's golden green oil.—(Jongh.)

"Lastly, Dr. Delattre, of Dieppe, conceived the idea of guarding the livers from the action of the atmosphere during the extraction of the oil. For this purpose he has constructed an apparatus consisting of three large earthen vessels of a globular form, which are half buried in a large sand bath, heated by means of a thermosyphon. These vessels communicate with a reservoir, from which a current of carbonic acid gas is given off, which expels the air from them. The sand bath is not heated until all the air has been expelled. The use of this apparatus prevents the formation of oleic, sulphuric, and phosphoric acids.

"M. Delattre distinguishes five varieties of cod-liver oil:—The *virgin;* the *pale yellow;* the *white;* the *brown;* and the *black.* He has deposited selected samples of these five varieties in the Museum of the Faculty of Medicine. The *virgin oil* is obtained by exposing the fresh livers, immediately after their extraction from the fish, to a dry heat of the temperature of 104° F. The *yellow* and *white oils* are procured, the first by a temperature of 122° F.; and the second by a temperature of from 140° to 158° F. The *brown oil* is obtained

from livers which have been kept three or four days; and the *black* from those which are from ten to fifteen days old.

"According to M. Delattre, the *brown oil* is the only one which should be used for medicinal purposes. The *virgin oil* is an unnecessary refinement. The *yellow* and the *white* have no better qualities than the *brown;* while the *black*, containing choleic and acetic acids, has a disagreeable acidity, which should cause it to be rejected.

"Cod-liver oil, however it is obtained, should have the characteristic odour of the sardine, and a fresh flavour, without any acrid taste; at a temperature of 59° F., it should stand at 392° of Lefebvre's oleometer. When a few drops are poured on to a piece of glass placed upon white paper, on adding a very small quantity of concentrated sulphuric acid, it should produce a carmine tint, inclining to the colour of catechu.—(Gobley).

"Cod-liver oil is a compound of oleine, of margarine, chlorine, iodine, bromine, sulphur, phosphorus, and of various acids; there is also found a small quantity of lime, magnesia, and soda, and a particular principle called *gaduine*. Gaduine is a colouring matter, which is at first yellow, but becomes gradually darker upon exposure to the air. It is soluble in alkalies.

"Some writers have endeavoured to refer the medicinal properties of cod-liver oil to the presence of iodine, and for this reason the proportion in which this substance is present has been very carefully inquired into. According to M. Berthi, there are 4·7 grains in every 2·2 lbs. avoidupois. According to more recent analyses, it is not more than 4 grains; but the quantity varies in different samples of the oil, and according to the time of year. The latter is the proportion which is found in the yellow oil. In the white oil there was found 3·9 grains, in the brown oil 3·7 grains, and in the black oil only 3·6 grains.—(Delattre.)

"Some practitioners consider that the bromine and the phosphorus may account for the action of this substance. Soubeiran says that a great part of its medicinal virtues depends upon the oil itself, and upon the aromatic and sapid bodies which are mixed with it."

The present work contains, in addition to the description of those animals which are either injurious or beneficial to man in a medical point of view, a more complete account of human entozoa than probably will be found in any previous work on the same subject. The distinctions which the author points out as existing between the *bothriocephalus latus* and the *tænia communis*, are worthy of being borne in mind:—

"The *bothriocephalus* is of a gray colour; it has an elongated head, without any terminal enlargement or circlet of hooks; it is furnished with two elongated fossæ; the segments are wider than they are long; and the sexual orifices are central. The *tænia* is white; the head is globular, with a terminal en-

largement, and two circles of hooks; it has four rounded oscula; the segments are longer than they are wide, and the sexual orifices are marginal. Like the tænia, the bothriocephalus inhabits the small intestines. The disorders which these worms produce, and the symptoms which indicate their presence, are the same in both species. The tape-worms without hooks belong to the herbivora, and those with hooks to the carnivora. In man, who is omnivorous, both species are met with. As a vegetable feeder, he is tormented with the bothriocephalus latus, and also with the tænia inermis; and as a flesh feeder, with the tænia communis and tænia nana."

The foregoing extracts may serve to give a fair idea of the author's mode of treating the several subjects described. The arrangement of the material is simple, convenient, and well adapted to the purpose for which the volume is intended—namely, as a text-book for the medical and pharmaceutical student, to whom, therefore, we recommend it as a concise and suitable book of reference on all matters connected with medical zoology.

Méthode Pratique de Laryngoscopie. Par le Docteur Türck, Médecin en Chef a l'Hôpital Général de Vienne, Autriche. Paris: Bailliere et Fils. 1861. 8vo, pp. 120.

The idea of obtaining a view of the deeper parts of the pharynx and larynx, as also of the posterior surface of the velum palati and posterior nares, by means of a mirror introduced into the mouth, is not new. It was suggested by Liston in his "Practical Surgery," edition 1840, and by others even previous to his time, if our memory does not betray us; it was, however, only suggested, and never brought into use until Garcia, in 1855, practised laryngoscopy on himself, with a view of determining the exact way in which vocal sounds were emitted. This was only for a physiological object; and the first adoption of a reflector for the medical examination of the larynx is distinctly claimed by the writer of the work at present before us, and who presented an essay on the subject to the Pathological Society of Vienna in 1855, followed by no less than sixteen other memoirs upon the same subject up to this date.

The present work offers in a moderate compass all that has been obtained, up to the present time, with the "Laryngoscope." It is abundantly illustrated with woodcuts, inserted in the text, and further embellished by two excellent lithographs, representing sections of the pharynx and larynx, with reflectors in different positions, showing the direction of the rays

of light, and the mode of obtaining views of the different parts by means of the laryngoscope. The description of the instruments, the mode of using them, and the interpretation of the appearances seen, is clear and graphic, and will repay the reader who wishes to investigate this subject. It seems, however, to us, that Dr. Türck makes too little of the difficulties which attend the use of this instrument—difficulties which, in our hands, have amounted almost to a prohibition of its use, having found so few in whom the presence of a foreign body of such size as a speculum could be tolerated in the pharynx without exciting coughing, vomiting, or other spasmodic effects, to such an extent that any examination was impossible. We have tried several of the methods he recommends, in order to facilitate the introduction of instruments into the pharynx, and have found him generally correct; for instance, in those cases where there is sufficient toleration of the mirror in the pharynx, but an uncontrollable tendency to raise the dorsum of the tongue, a good view may be obtained by causing the patient to vocalize the letter A at the same time that he makes deep inspirations and expirations in even succession; but we suspect that few indeed have been the individuals who would tolerate the presence of the reflector at all. In addition to the foregoing, he recommends the use of a double spatula-shaped forceps, with which he seizes and contracts the tongue; but we have no personal experience of it. Dr. Türck recommends great gentleness and patience, and the frequent questioning of the patients themselves as to the relative sensitiveness of different parts of their mouths, so as to avoid touching them, if possible, when introducing the instrument; and he asserts that after a little time, and gentle manipulation, patients become very tolerant of the presence of the reflector. This toleration having been obtained, the physician may begin to make use of the reflector by examining the parts it brings into view; and for this purpose a ray of solar light should be reflected from a small mirror into the patient's mouth and on the reflector, which the practitioner holding in his right hand will then turn, so as to illuminate such parts as he wishes to examine.

It is impossible to convey to the reader a satisfactory account of this work in the absence of the numerous diagrams, to the explanation of which a great portion of the book is devoted, and which not only serve to show the appearance of the larynx in the reflectors, but also abundantly illustrate the difficulties that are likely to be met with, as also the best mode of overcoming them. For instance, Dr. Türck has found that the best method of obtaining a sight of the larynx in cases of great

enlargement of the amygdalæ is by getting the patient to laugh, after the reflector is introduced into the mouth. Dr. Türck asserts that he has often seen the interior of the trachea to its bifurcation, and has even peeped into the bronchi! But these investigations were carried on, not on patients, but on highly intelligent, healthy individuals, who lent themselves for their examination, and gave every assistance in their power for the success of the experiment—a very different state of things, it will be readily admitted, than when one has to deal with delicate and nervous patients.

Should it be desirable to make use of artificial light, then a perforated mirror, such as is used in ophthalmoscopic observations, will be found convenient. In some cases, Dr Türck has adopted with benefit the use of magnifying mirrors, but we have no experience of them. We doubt that the laryngoscope will ever come into much use; the patients who can tolerate the presence of a reflector in the pharynx are too few, and the amount of delicacy of manipulation required even in those favoured cases is considerable, while the extent of information derivable from it will, we fear, be much less than was anticipated.

The Physiology of Common Life. By George Henry Lewes. Edinburgh and London: Blackwood and Sons. 1859, 1860. 2 vols. 8vo, pp. 455 and 485.

This work does not profess to be a treatise on physiology, but only on those parts of the science which come within 'the range of general culture,' and which are, as such, suited for popular readers, though at the same time the author professes 'to meet the wants of students,' as well as general readers, by rendering "the exposition of all the topics selected on a level with the science of our day."

The author is well known as the writer of the "History of Philosophy," "Sea-side Studies," "Life of Goethe," and is supposed to have had, at least, an influence in the production of several celebrated works of fiction. His attainments are, principally, of a literary and philosophical character; and he brings to the study of physiology all the advantages of an intimate knowledge of the principles of logic and metaphysics. In this work the reader will find both the excellences and defects natural to such a preliminary training; his command of language and power of illustration are very great; and, as a logician, he seizes at once on the point at issue, and sets aside irrelevant

conclusions from his premises. In the second volume, which relates chiefly to the physiology of the nervous system, his metaphysical knowledge gives him an important advantage, as it enables him to approach the subject from the psychological point of view, and to disembarrass himself from confusion of language as to 'consciousness,' 'sensation,' 'volition,' and other words of constant recurrence, without definite meanings, in the writings of most physiologists, who have occupied themselves with the mystery of 'mind,' 'brain,' and 'nervous system.' Like many logicians, however, Mr. Lewes combats at times adversaries of his own creation, and satisfactorily refutes opponents who do not exist. We think this is particularly the case in his attack upon "the combustion theory of respiration," and "the theory of flesh-forming and heat-producing foods."

Our space will not permit us to do more than notice a few of the most important parts of this work; but we are well aware that it would be impossible to do justice to the brilliant style of the author, without much longer and more numerous quotations than we shall be able to give.

Passing over some marvellous stories as to extraordinary kinds and quantities of food used by remote and savage nations, we come to the author's attack on the chemical theory of nutrition. With an instinct common to him with many other physiologists, he protests against the dogmatism of chemistry in this matter. This dislike on the part of physiologists to the conclusions of an exact science is not confined to chemistry, or any branch of physics; it has been exhibited by Claude Bernard, and by the author also, to the tyranny of arithmetic, which insists on adding up results in physiology, as in every other branch of science, and taking averages, with which to compare individual similar cases that may arise. If the author's objection to such processes were valid, the right conclusion would seem to be that physiology is not yet a science; it is, indeed, a complete science, but, like the perhaps equally complex science of meteorology, can only expect to make solid progress by borrowing the methods and weapons that have been so successful in other branches of science.

The author, in criticizing the chemical theory of nutrition, shows that he does not fully understand it; he, indeed, argues at much length against the exploded theory of 'plastic' and 'respiratory' foods, which supposes each kind of food to be exclusively applied to one purpose in the organism, and to no other; but of the simple conception of the chemico-mechanical theory of nutrition and waste, which from the character of the *ingesta* and *excreta* determines the efficiency of, or *work*

done by, the animal, the author has not the slightest idea. He insists, *ad nauseam*, that salts, chlorides, sulphates, and phosphates are food, as well as fibrine and fat, but seems to be unconscious that every chemist believes the same. In fact, in this part of his work, the author differs from his supposed opponents only in the meaning he attaches to the word 'food.'

All the ingesta which go to form tissues of any kind, and which are excreted when their work is done, may fairly be considered as 'food.' Whether all the water we drink, or all the nitrogen or salt we consume, is to be called 'food' in this sense, is a question fairly open to difference of opinion; and with the above definition of 'food,' some of these substances are food, and some are not.

With another definition of 'food,' a different conclusion would be drawn; for example, if we define as 'food' ingesta, without which the organism perishes, then oxygen and water are food, although neither the oxygen nor the water may have entered into the composition of any of the tissues.

A metaphysician criticizing the results of the labours of scientific observers is peculiarly liable to the danger of making new discoveries, which have escaped the notice of the observers themselves. This process is vulgarly, but pithily, called finding 'mare's nests;' and we are not quite sure that the author has not fallen into it, even with respect to the nervous system, which is unquestionably the best part of his book. Many of the points he insists upon as his own excited in us the idea of Dr. Primrose, that we had met them before, at least we should like to hear the other side of the question.

The theory maintained by Mr. Lewes of the nervous system is the following:—It is essentially one, its parts being intimately connected. Each ganglionic mass (grey neurine) has a common property, which he calls Sensibility, but different functions according to the connexion of the ganglion with different organs. The cerebrum has the functions of Intelligence and Emotion, arising probably from external and internal stimuli respectively; the cerebellum has unknown functions; the medulla oblongata ministers to respiratory and other reflex actions, besides having the same relation to Hearing and Taste that the corpora quadrigemina and olfactory lobes bear to Sight and Smell; and the Spinal Cord consists of segments, every one of which *may* act separately as an independent centre; "every segment is a little brain."

With the exception of the last assertion, we believe the foregoing is quite in accordance with the views of the best modern physiologists, and that any difference of opinion that

exists may be resolved into a disagreement as to the use of words; in fact, if we get rid of the Latin words "consciousness," "sensibility," "perception," "sensation," "volition," &c., &c., and confine ourselves to homely Saxon, there is no difficulty in admitting that every nervous ganglion "feels," but that the property of "thinking" is the exclusive prerogative of the hemispherical ganglions. That all the ganglions "will," as well as "feel," cannot reasonably be disputed, as there is a motor as well as sensitive apparatus connected with them.

The following passage illustrates the author's division of Consciousness into Sense Consciousness and Systemic Consciousness, and is a good example of his general style of writing, which is worthy of the highest praise:—

"In like manner, the various streams of sensation which make up our general sense of existence, separately escape notice until one of them becomes obstructed, or increases in impetuosity. When we are seated at a window, and look out at the trees and sky, we are so occupied with the aspects and the voices of external Nature, that no attention whatever is given to the fact of our own existence; yet all this while there has been a massive and diffusive sensation arising from the organic processes; and of this we become distinctly aware if we close our eyes, shut off all sounds, and abstract the sensations of touch and temperature—it is then perceived as a vast and powerful stream of sensation, belonging to none of the special Senses, but to the System as a whole. It is on this general stream that depend those well-known but indescribable states of Consciousness, named 'feeling well' and 'feeling ill'—the *bien être* and *malaise* of every day. Of two men looking from the same window, on the same landscape, one will be moved to unutterable sadness, yearning for the peace of death; the other will feel his soul suffused with serenity and content: the one has a gloomy background of Consciousness, into which the sensations excited by the landscape are merged; the other has a happy background of Consciousness, on which the sensations play like ripples on a sunny lake. The tone of each man's feeling is determined by the state of his general consciousness. Except in matters of pure demonstration, we are all determined towards certain conclusions as much by this general consciousness as by logic. Our philosophy, when not borrowed, is little more than the expression of our personality."

On the *questio vexata* of the anterior and posterior roots of the spinal nerves, the author maintains that they are not *exclusively* motor and sensitive, but that each root is capable of exciting both properties or actions. We must refer our readers to the work itself for his views on this important question. On the subject of "reflex action," illustrated by the cases of de-

capitated and divided animals, we do not regard the author's views as differing so much as he supposes from those generally held.

In Mr. Lewes's attack on the combustion theory of respiration, he completely misrepresents his imagined opponents, by neglecting to take any account of the oxidation involved in the excretion of urea, and of the carbonic acid eliminated by the skin. No physiologist—certainly no chemist—now holds that the oxygen absorbed by the blood in the lungs is equivalent to the carbonic acid discharged by the same organ. To suppose this would be, in fact, to ignore, as Mr. Lewes himself does, the much more important oxidation that takes place in other excreting organs.

We shall conclude our observations by stating, in the author's own words, a "paradox," which admits of easy solution, and which would not have puzzled him had he been in possession of a correct theory of Nutrition and Work. We shall leave it unsolved, as an exercise of the ingenuity of our younger readers:—

"Let me call attention to a paradox which physiologists have seemingly overlooked, namely, that the physiological canon of 'all activity being dependent on waste of tissue,' seems here contradicted by a class of substances (narcotics) which notoriously increase the activity, and demonstrably decrease the waste. It is held that every evolution of force is produced by some chemical change; and every change tends towards final decomposition. In a vast variety of cases this is demonstrable. In the cases now under consideration nothing of the kind is apparent—the tissues are more active, and the waste is less. And what makes the paradox more striking is the fact that none of these substances enter, as such, into the composition of the tissues. They must be supposed, therefore, to act upon them; but how can they act upon them, involving force, without producing decomposition?

"I instituted some experiments with a view of determining, if possible, what the precise action was, and whether it was similar in each case. The fact that we ordinarily employ alcohol to *preserve* animal preparations—to protect them from that decomposition which would otherwise ensue if the substances were left to themselves—suggested the idea that when we drink alcohol, in wine, beer, or spirits, the action on our tissues may be of the same nature, only less energetic. If a *temporary* suspension of the inevitable process of decomposition were effected by alcoholic drinks—if the alcohol acted on the living as on the dead tissue, and arrested its molecular changes—we should then clearly understand how it is that alcoholic drinks diminish waste, how they are the 'savings-bank of the tissues,' and how they lessen the quantity of food which is needful.

But the mystery would still remain how such an arrest of change could be coincident with an increase of power.

"The point I endeavoured to establish was this: Are the tissues *preserved* by decoctions of Tea, Tobacco, and Coffee, in the same way as by Alcohol? The experiments gave a decided negative; and I am now disposed to doubt whether the action of Alcohol on the living tissues, when taken in the highly diluted form of wine or spirits, has any notable resemblance to that which concentrated Alcohol has on dead tissue. Consequently, the mode of action of tea, coffee, and narcotics has yet to be explained; and when explained, there will still remain the paradox of increased activity with diminished waste."

Sore Throat, its Nature, Varieties, and Treatment, including the Use of the Laryngoscope as an Aid to Diagnosis. By M. Prosser James, M.D. London, Churchill. 1861. Post 8vo, pp. 155.

We seldom came across 155 pages of more unsatisfactory reading. We had expected, from the title, to have found in them some account of the laryngoscope, its uses, its difficulties, and the assistance it renders in doubtful diagnosis; but not a word did we find upon the subject beyond the bare mention of the name occasionally. The place is, however, abundantly replaced by "*my speculum and reflector*," which is constantly mentioned. We feel bound in justice to utterly condemn the book; in the first instance, a monogram on the diseases of which it treats was not required; and if such had been wanting, Dr. P. James' book would not supply the deficiency. Nothing could be more shallow or meagre than the descriptions of disease attempted; and as for the style and language, the following extract will sufficiently illustrate the whole volume:—

"It is the old tale of 'eyes and no eyes.' To gather knowledge, men must have the 'art of seeing.' We must dig in nature's mines, before we get the precious ore. Everything worth having is hid. We do not pick up jewels in the streets. All that distinguishes civilized nations from savages has been won by work," &c., &c.

Dr. P. James does not even seem to be acquainted with some of the most characteristic symptoms of the diseases he enumerates; or, if he is, he does not vouchsafe to communicate them to his readers. We would always much rather praise a work than find fault with it, but our duty to the public and to ourselves compels us to be impartial.

Ready Rules for Operations in Surgery. By ALLAN WEBB, M. D., F. R. C. S. L., &c. London: Churchill. 1860. Royal 8vo, pp. 49.

A WORK upon the important subject of surgical operations is sure to meet with all that attention from the profession which such a subject is so well calculated to excite.

The amazing increase of machinery, the interminable extension of railways throughout the world, the unlimited progress of mining operations, and the fearful ingenuity displayed in the construction of the materiel of war, exposing as they must necessarily do such multitudes of human beings to accidents of the most fearful character, combine at the same time to demand from the practical surgeon such a thorough acquaintance with the best modes of performing operations, together with a promptness and adroitness in deciding on and in conducting them, as shall fully fit him for the increasing emergencies of the times and circumstances in which he finds himself placed.

We are happy to see before us a work written expressly with reference to the subject of which we speak.

In the preparation for, and more especially in the performance of, surgical operations, it is of the utmost importance that throughout the entire operation there should exist such a thorough understanding, such a consentaneous movement between the operator and his assistant, as shall exhibit the unity of purpose which actuates them both. The author, duly impressed with the importance of this most valuable consideration, does not fail to inculcate it practically throughout the work; and, whilst he lays down rules for the regulation of the surgeon himself, he is equally precise and full as to the rules by which the assistant shall be directed in rendering his services harmonious and truly advantageous.

The author informs us that—

"This short manual originated in the rules given to the military class when I held the office of Professor of Military Surgery in the Calcutta College during the Affghan war. They were written largely upon a black board in Hindoostanee, in two columns, as here printed in English, the great aim being that the assistants should know what to do in concert with the operator, *at the very time that the surgeon required it done.* In each operation there is laid down upon one sheet, without reference to others, all that is required for that one operation, both on the part of the surgeon and of his assistants, the consentaneous proceedings of all concerned in it; and this in the successive steps as they occur, showing also, at a glance, the apparatus to be used, as well as how to use it."

The instructions for the direction of the assistant or assistants, together with a list of the several instruments and appliances necessary for the operation, are clearly stated in tabular order upon one page of the book, and on the opposite are set down with equal precision full directions for the guidance of the operator himself. A bird's-eye view is thus given of every important operation. The author seems deeply impressed with the necessity not only of having "the right man in the right place," but also of having "a place for everything, and everything in its place." Whilst we would wish to speak in terms entirely commendatory of the plan of the book, and the important information which it communicates to the operator and his assistant, we would desire to impress upon the mind of the junior practitioner the fact that he may frequently find himself placed under the painful necessity of going single-handed to an operation, and obliged to depend upon his own unaided resources for its entire management and completion. Under such circumstances, not only is there required a thorough and practical acquaintance with his profession, but all that calmness, coolness, decision, and ingenuity, which it would be well for him to cultivate with the utmost assiduity and patience.

We believe the work under our consideration will be found an exceedingly valuable chart for the use of the operating surgeon, whether in civil or military practice.

Operative Surgery, adapted to the Living and Dead Subject. By C. F. MAUNDER, F. R. C. S. London: Churchill. 1861. Parts 1 and 2. 12mo. pp 144 and 174.

THE idea of this book is good. It seems to us a book addressed to students to teach them, if possible, things, and not words; and in furtherance of this idea, names and authorities are not piled, Pelion on Ossa, as in the ordinary manuals. Anything like an analysis of its contents would, from its nature, be out of place; and we shall content ourselves with extracting a few points that, from novelty and excellence, seem to merit special notice.

The first is an application of Sedillot's plan for ligature of the common carotid low down to ligature of the arteria innominata. In this mode the artery is sought by a longitudinal incision between the two heads of the sternocleido-mastoid muscle. There is no doubt that on the dead subject such an incision will give more brilliant results than Mott's angular wound, which divides the greater part of the attachment of the muscle; and on

the living, if found insufficient, a cross incision could readily be added to it. This operation, however, with ligature of the internal mammary and such like, will for the future be in all probability confined to dissecting-room exercises; nor is this to be wondered at in the case of the innominata, when, in all recorded cases in which the artery was tied, death has ensued; the only approach to success being the late Professor Porter's well-known case, in which the artery was not tied, although the operation went so far as the placing of the ligature *in situ*. The artery was too much diseased to permit of the ligature being tied; but from the free handling of the tumour, a cure by displacement of clot ensued.

The following mode of amputating the penis, recommended by Hilton, is preferable to the ordinary mode by one sweep of the knife, in that the orifice of the urethra is kept patent, and the tendency to contraction avoided:—

"Introduce, if possible, a No. 12 catheter into the urethra, so as to define the extent of the corpus spongiosum. Let an assistant draw the integument of the organ towards the pubes, that sufficient may be left to cover the wound; and then hold the body of the penis firmly between his fingers and thumb, in order to compress the vessels. The operator defines the corpus spongiosum, and at the intended point of amputation transfixes the organ with a narrow-bladed scalpel, so as to separate at the point the corpus spongiosum from the corpora cavernosa; the edge of the knife must now be turned up, and be made to cut its way out by severing the corpora cavernosa; this done, these bodies are to be dissected off the corpus spongiosum in a forward direction to the extent of a quarter of an inch; and the catheter being now withdrawn, the amputation is completed by dividing the corpus spongiosum to the above extent anterior to the corpora cavernosa. The vessels having been ligatured, the projecting portion of corpus spongiosum is to be slit up longitudinally, so as to form two or three flaps, the borders of which are to be attached by suture to the margin of the integument."

We beg to draw the author's attention to the description of the figure-of-eight knot as applied for the strangulation of a tumour,—as given, it is incorrect and quite unintelligible; this arises, probably, from unnecessary condensation. We also object to the urethrotome (p. 155), as a dangerous piece of mechanism. Other minor blemishes exist, capable of correction in a future edition, which we hope the little work will soon reach.

The Physical Examination of the Chest in Pulmonary Consumption, and its Intercurrent Diseases. By SOMERVILLE SCOTT ALISON, M. D., Edinburgh, Physician to the Hospital for Consumption and Diseases of the Chest, Brompton. London: Churchill. 1861. 8vo, pp. 447.

DR. ALISON'S energies have not been directed to the subverting of any hypothetical views, of any abstract hypotheses of medicine. He has no lance to tilt against Mercklin and Willis, Vieusseus and de la Boe. The mathematical theories, the eclectic system, trouble him in no wise; nor does he waste his time in deciding on the relative merits of the oscillations and the motions, of the dyscrasies and of the humours. He has set himself the task, purely and simply, of expounding the physical method in its application to tubercular disease within the chest; and whether tubercle is fibrinous or albuminous, whether a degeneration of epithelium or a fatty perversion, an organizable arrested, or a non-organizable effete material, Dr. Alison is equally unconcerned. He belongs to the advanced school of objective medicine—a physicist in the purest sense. He would even treat the chest and the tubercle, if he could get at it, as Mr. Brooke would a bit of felspar with undetermined angles,—accordingly, we have a chest-goniometer; or perchance he takes an harmonious view of the subject, and, playing with the hydrophone and the sphygmosphone, is luscious on metallic tinkling and sounds of the cracked-pot. Nor does he disdain the art which appeals to the eye by aid of the pencil; and accordingly he gives us drawings of oscillatory respiration and inspiration and expiration sounds, which, to the uninitiated, appear like eclipses of the sun, moon, and stars. He denotes murmurs and undulatory breath-sounds by lines of erratic tendency, having no little resemblance to sky-rockets that have taken leave of their senses. Spirometers, stethometers, callipers, and echometers are dear to him. Perhaps he is a trifle too nice, and too absolute; but we cannot be severe on such a fondness for the exact method, though its tendency should eventually be such as to induce the consideration of consumption from an algebraical point of view, and the working out tubercle in the form of a vanishing fraction. Still we think that, as the mind of the physician can only cover a certain amount of work, can only absorb a certain number of principles, in themselves dry and unsuggestive, it would be well to avoid this hyper-refinement, which, though far preferable to vague and loose descriptions of symptoms, tends, while laudably aiming at definite clinical knowledge, to lead to a

dogmatic view of the mysterious and subtle laws of vital functions—to imbue the learner with the notion that life is something to be summed and weighed, rather than an attribute of inconceivable power, and not so much a spirit as a radiant species of force, admitting numbers as estimates of its nature and amount. The inquiry may be strained, in fact, to the absolute neglect of symptoms. The keen eye and the instinct of the physician "to the manner born" may come to be slighted, with immense detriment to the public, though the inquiry itself is laborious and laudable. For, to render the lungs subject to the same laws of investigation as are other organs—to contrive that thoracic diseases should in their very origin have clinical expression,—that primitive disturbance in texture and in function should have recognition ere the effects become discernible from the subjective aspect, and the disease consequently be beyond the grasp of preventive medicines,—physical signs must be absolute and exact; and in those who assist to render them so, tediousness of detail may be overlooked, and niceties a little mythical engender but gentle criticism.

The Doctor's first lines include a challenge to the disciples of the school of which Dr. Copland is the conspicuous representative. He lays it down as an irrefutable axiom, that in weighing evidence afforded by symptoms, or that indirectly obtained by the examination of the chest, the latter, obtained by physical signs, is much to be preferred. In our opinion, Dr. Alison goes a stage too far, when he asserts that the symptoms of pulmonary consumption are much more the symptoms of other diseases than the physical signs of pulmonary consumption are those of other maladies. It is vain thus to antagonize the methods which have but one common object. To do so is to expose one's self to the charge of scientific egotism, of which, though so strong a partizan of the physical method, we should wish Dr. Alison, and all such good men of whichever school, to be absolutely free.

What is the trap set by the homœopaths? If not an allopath, you are nothing; and an unwary disputant, once led to admit himself allopath, forfeits his position as a *healer* to become a controversialist. "I treat disease by similars, you by dissimilars. Where's the difference?" And we shall by and by be split into symptomatists and positivists. Medicine is, and ever will be, an inexact science: all is change,—all is subject to hidden law; and it is empty for either side to slight the method of the other. Is it possible to answer the question,—and, to a practical mind, a needless question,—will you abide by signs or symptoms? To moot the question of rivalry, is to confess

that neither method is perfect. Nothing, it is true, can be more replete with interest than the gradual evolution of physical signs in the progress of the disease; yet we think that cough, expectoration, dyspnœa, and sweating, will, with men in active practice, always take equal rank as diagnostic means with percussion dulness, jerking rhythm, and aggravated fremitus. The natural excess of dulness on the right side, the increased normal vibration of this side, the harsh and natural expiration sound in females at right apex,—we assume expiration sound *is* heard in health,—always tend to vitiate the indirect objects looked for in a physical examination; and to seek for a diagnosis in arterial bruits, and thence infer consolidation, when the patient is evidently from his symptoms in an unmistakable decline, is almost scientific childishness, to our thinking; for, where there are loss of weight, short cough, scanty sputum, quick pulse, and dyspnœa, there can be little doubt of what is going on; and where there are neither physical signs nor symptoms, as not unfrequently happens previously to an attack of acute phthisis, systolic bruits must be loud indeed to warrant a diagnosis.

Were it possible to apply the same method of inquiry to the lungs that is so ready and efficient when directed towards the kidneys, then we grant incipient lesion would be disclosed when symptoms failed us altogether. But where tubercular deposit not softened is the sole pathological feature, nothing of perversion of function can be detected by notable difference in its performance. The nitrogen, the carbonic acid, the aqueous vapour, are all given off as before; and inquiry in this direction will always be of little value, as the amounts of their several exponents of function are subject in health to ceaseless and indeterminable variations. To the detection of tubercle in the first stage, we can bring no appliances that can compare with those which, when secreting organs are concerned, enable us to detect and discriminate between simple irritation, degeneration, and rupture. We have, it is true, alterations of percussion quality, modifications of respiratory rhythm, development of respiratory sounds, alterations of resonance, and increase of fremitus. But it must be allowed that these signs are none of them pathognomonic. They are guides to the educated instinct, not oracles, scientific hints and whispers, rather than positive testimony, to tubercle, or even evidence of foreign matter, of whatever nature.

In the relative valuation of physical signs in early phthisis, Dr. Alison places in the first rank alteration of vesicular continuity, equality, and character. An altered condition of

rhythm, if limited to one apex, has considerable diagnostic value, which, were it not that many females present this loss of uniformity, would be materially enhanced. This perversion of rhythm not unfrequently is so marked as to account for jerking inspiration, and depending upon the presence of an obstruction in the ultimate subdivisions, not seldom gives rise to actual division of the inspiratory act. When general, jerking character is of little diagnostic value, indeed may actually lead to error; for though it is seldom the infiltration, so to speak, extends in the first instance beyond such portion of lung as properly may be referred to apex, yet it is not impossible for tubercle to be simulated under such circumstances by any of the extrinsic causes which, primarily acting on the motor muscles of the thorax, induce irregular exercise of the "suction power," and impart the unnatural character in question to the inspiration sound. Such causes do not act, however, to the increasing the intensity of the expiratory sound, any perversion of which, despite the coexistence of spinal irritation, incipient pleurisy, neuralgias, and partial paralysis, may be held of serious import.

It would be well if the views of Skoda could be definitely rejected or received in this country. No auscultator hesitates to accept almost implicitly his doctrines on thoracic acoustics; but, with the exception of Dr. Salter, we know of no English physician who, on the subject of the expiratory murmur, has given his assent to the opinions of that eminent physician. Is the expiratory sound audible in healthy expiration? Skoda thinks not: most of us believe it is audible, and base one principal physical sign, not on its production merely, but on its aggravation. The present doctrine affirms, expressing it arithmetically, that the relative loudness of inspiration and expiration are in health as four to one. This proportion, in many diseases of the lungs and air-passages, tends very constantly to change, and that not only when itself increases without increase in intensity of the inspiration sound, but when increase of intensity affects simultaneously both sounds, bringing about, without of necessity any modifications of special quality, exaggerated respiration; the result of obstruction more or less complete, and consequent inactivity of some portion in the confines, it may be observed, not in phthisis merely, but in such affections as consist in condensation of texture at the seat of development, or in obstruction of parts adjoining, the loci of which are indirectly indicated by the sound in the healthy texture. The prolongation of the expiration sound, Dr. Alison states, is due to the increased resistance which the air pass-

ing out encounters in a tissue more solid than usual, and such as is capable of interfering with the compressing action of expiratory muscles, which are not at early periods of deposit sufficiently strong to overcome material resistance. If this be so, any expiration sound should always be audible in naturally weak or deferred respiration, but this we hesitate to believe, —especially, moreover, as the expiratory act depends far more on the natural tendency of the bony walls to resume their positions on the descent of the diaphragm, and the inherent elastic character of lung-structure, than on expulsive influence of rib-muscles. Altogether, the importance of exaggerated respiration as a specific sign of tubercle, we believe is very much overrated, and at least in females is very fallacious, where tubercles are diagnosed at the right apex. In both sexes, moreover, it should be borne in mind that certain sibilant rhonchi of bronchitis intercurrent or idiopathic may simulate expiration sound, the true respiratory murmurs being absent nevertheless.

The harshness of respiration, on which Dr. Alison insists, and due to the greater velocity brought about by the passage of a given quantity of air through a narrowed tube, would have real clinical value, if in a given case, we could eliminate non-secretive bronchitic influence, infiltration from other than tubercular products, and dilated bronchus. The process of expansion of the air-cells is believed by Dr. Alison to be concluded early, owing to its small amount. We have, on the contrary, found the duration of harsh respiration increased, as compared with true vesicular breath sound; and it seems to us, in harmony as it is with our experience, that the foreign matter does not act to the exclusion of air from the lung, but, in a retarding sense, inducing an extension, a gradual deferring of the respiration time. The duration of each respiration act increasing, changes of type manifest themselves; until, from the harsh respirative character of incipient tuberculization, the diffused and blowing tubulars are observed. If this belief is in accordance with fact, it is not difficult to perceive how it comes to pass that the respiration does not become more and more hurried as tubercle increases. The *besoin de respirer* is, doubtless, aggravated; but the generally received notion, that respiration is more and more rapid as the deposit augments, is, we think, and in opposition to Dr. Alison, who assents to it, mostly incorrect.

It is common experience with auscultators to note difference of equality on the two sides in respiration sounds, even in in-

dividuals reputed free from disease. Strangely enough, authors and men of very large practice seem disposed to take a different view, and to consider one side equal to another. What many hundred cases may eventually lead us to believe on this subject we know not; but at present we act always up to the opinion we entertain, that the respiratory sounds are normally in excess on the right side. This must be simply the experience of accident, if what Dr. Alison states is the rule. He has found an excess of loudness of vesicular sound on the left side in about ten out of a hundred boys and girls; nearly all the others were noted to have equal respiration on both sides. If the excess be on the left side, it is, in great measure, doubtless, to be ascribed to abrupt curving of bronchial tubes at the left apex. Dr. Alison believes the heart offers an impediment on the left side, but this is rather libellous on nature. We have, however, long held the opinion that the explanation of differences in relative vibrations, and clearness of percussion notes, are to be sought in the more anterior position of the left bronchi.

Such considerations naturally lead to a search for other signs indicative of that crude state of tubercle, when absorption may be hoped for. We say *may*,—for inclining, as we do, to the opinion of Simon and other eminent pathologists (as opposed to that of practising physicians), we believe tubercle to be the specific product of a constitutional state, which itself must be altogether modified for production of tubercle to cease, or for those processes to become arrested which are in themselves inseparable from the evolution of the vice. Other signs are, however, perhaps more open to fallacy than those recognizable by the ear. In females, deficient expansion movement may, it is true, be depended upon to a great extent, certainly more than in males; but, in both sexes, any observations by means of callipers, stethometers, chest-goniometers, lead but to this inference, that there are general or partial defects of symmetry,—defects which the eye can more readily appreciate than the most delicate instruments. But tubercle does not cause bulging, even when the deposit is large; and should undue prominence of an intercostal space be observed, it is next to impossible to decide whether the appearance is not to be ascribed in reality to contracting pleural adhesions. Collectively, indeed, physical signs in but too many cases afford very insufficient grounds for diagnosis: any means by which these may be rendered more available has of necessity great value, and certainly two instruments of the author deserve notice at our hands. The chest-goniometer of Dr. Alison is found by

its inventor very serviceable in the admeasurement of deviations in form, at different periods of the progress of the case. It consists of two arms, revolving on a central joint, meeting at various angles as they are made to separate from or approach each other. Connected with the central point of one of the arms is attached a graduated arc; and an index, moving along the graduated arc, is connected with the central part of the other arm. By means of this instrument, one is enabled to take curves as well as angles, and every possible nicety of result is arrived at. The results, of course, can only be valuable by comparisons instituted on the two sides. We quote Dr. Alison's directions for using the instrument, ample details of which are given at the end of the work:—

"Many deviations from the natural form of the chest cannot possibly be regarded as angular, and are essentially curves or portions of circles; it is desirable to measure them both for recording and for comparison with sound parts. This may be done with the stetho-goniometer in this manner: we fix upon the apex or middle of the curve, and upon a point which divides the portion of a curve which is on either side of the apex, into two equal parts; we then bring the arms of the instrument to form tangents to the curves at these points, the joint part of the instrument being held above the apex. The degree on the arc pointed at by the vernier, will be an accurate indication of the configuration of the curve. To compare one curve with another—say, a natural with a preternatural one—the arcs to be measured must be of the same length. The larger the circle of which the curve is a segment, the greater is the angle of the tangents. It will be found that the stetho-goniometer so employed, will practically afford not only a good measure of the angle of the tangents to the curve at their bisection, but will give a fair rough outline of the curve itself."

By means of a more important instrument, which Dr. Alison calls the differential stethoscope, the acoustics of respiration receive material assistance, and we fear they are carried to a pitch of refinement which must render auscultatory labours very laborious and unremunerative. In ordinary cases, we believe the ear flat to the chest detects alterations of rhythm or quality of any practical moment; and uno-aural stethoscopy, to those who must have an instrument, obtains the information required efficiently and neatly. But in dealing with the finer thoracic murmurs, in detecting slight perversions of vesicular breath, many accomplished auscultators have lately placed much dependence on binaural instruments, believing that auditory sensations from a given source are more acutely perceived when both ears are made cognizant of them. Dr. Leared's instrument

and Dr. Camman's binaural stethoscope, a modification of Dr. Leared's, enable us to listen to the sound at a given spot with two ears, instead of one. Dr. Alison's differential stethoscope enables an auscultator to collect sounds from two different areas, and to convey them separately to the two ears.

The instrument so far resembles Dr. Leared's stethoscope in having two tubes, one for each ear. It differs from other binaural stethoscopes, however, in having two cups for collecting sounds, each cup being attached to its own tube. The tubes, where leading from the cups, are of flexible material; towards the auscultator, they are of metal. Eventually we think Dr. Alison will find it more advisable to have the tubes of uniform material throughout.

"The differential stethoscope proves of value not only in taking consecutive observations; it affords, as has been discovered in practice, without, if not contrary to expectation, most valuable information when observations are made upon two different parts of the thorax at the same moment. It has been proven, by this instrument, that slight differences in the intensity of the same sounds conveyed separately to the two ears produce remarkable and very striking results. The same sound conveyed to one ear a little *stronger*, and the same sound conveyed a little *weaker* to the other ear, is or seems to be heard through that ear only which has the major sound, and not at all through that ear having the minor sound. It is to be borne in mind that the conveyance of sounds to the two ears must be simultaneous. Not only does the sound appear to be heard in or through the ear favoured with the major sound, and not at all in or through the ear supplied with the minor sound, but the parts from which the sound proceeds, according as they are connected with the ear more or less favoured, are sounding or silent.

"To be more explicit: a body which sounds in one ear is rendered sensorially silent when the other ear is connected with that body in such a manner or in such a place as to receive rather more sound, the favoured ear seeming to be the only medium or organ through which the sound is perceived, and the place so connected with this ear being the only one which is sounding. Further, lest the idea which we desire to enforce should not be understood, let it be added that a sound audible in or through one ear is rendered inaudible in or through it the moment the same sound is conveyed in greater force to the opposite ear; sound, quoad the first ear, being taken away, and transferred sensorially, so to speak, to the second. Thus, to illustrate this principle physiologically, a weak vesicular murmur-sound proceeding from the left side of the chest heard in the right ear, is silent, or is lost, quoad this ear, by conveying the stronger vesicular murmur sound of the right side into the left ear, in or through which this latter sound is now heard.

"By the operation of these two principles: 1st, the consecutive observation of the sounds of two parts of the chest by the two different ears; and, 2ndly, by the 'eclipsing' of a weaker impression in or through one ear by a stronger impression in or through the other, the differential stethoscope is capable of affording great aid in the discovery of phthisis."

If we grant the auscultator a sensorial ability to avail himself of it, he is able by the differential instrument to make out, by noting that one side gives out full prolonged respiration-sound while the other is silent, that there is a loss of acoustic symmetry, and to draw a consequent inference of disease. This is, at all events, a great advantage to those whose memory is too faulty to enable them to remember impressions conveyed by two consecutive auscultatory acts. Dr. Alison's personal experience goes to show its great clinical value under many phases of the disease, from simple deposition to cavity formation:—

"As the deposition of tubercle progresses, the harshness increases; and if the differential stethoscope be employed, with one sound receiver over the diseased part, and the other over a healthy part with normal soft respiration simultaneously, this latter sound is lost, or tends to be lost, and the only sound heard is that of coarse harsh respiration communicated to the ear connected with the diseased part. The difference is thus very effectively made, and in such a satisfactory manner as is not to be procured by the ordinary stethoscope. For this result a decided loudness must exist.

"The harsh sound of tuberculating lung soon becomes deficient. I believe harsh deficient sounds commence at the same moment as the murmur of healthy lung, but they cease before the latter terminates."

And again:—

"The approach to feeble ill-formed vesicular respiration sound is such, that it may be, and often is, confounded even by practical stethoscopists with the feeble condition of breathing in the first stage. The differential stethoscope under these circumstances proves of some value. Both sound collectors being applied, one on the sound side, and the other on the feeble side, the result is such as to convince the hearer that very different conditions of lung are present at the two parts. If the feeble inspiration sound be proceeding from a dry cavity, the contrast is *very great*, when the two parts are listened to in succession; such as is scarcely ever obtained in the case of healthy lung, contrasted with phthisical lung in its first stage of degeneration. If the two cup collectors be simultaneously employed, the ear which is connected with the

sound lung is the only one which, to the mind, seems to receive any sonorous impression, which is hardly the case when the two ears are listening, one to a healthy lung and the other to a lung the seat of tubercle in its crude or nascent state, and while yet in very moderate amount. The absence of hearing through the ear connected with the diseased side, always indicates some very considerable amount of deposit, or some form of very serious or advanced disease. When silence is not due to a large amount of crude tubercle, it is generally an old dry vomica that is present, but total hepatisation will produce the same result, but this hepatisation of the apex is extremely rare."

Our limits will not permit us, much to our regret, to dwell more at length on this very elaborate treatise. Dr. Alison's researches into the physical signs of excavating lung are conducted with as much ability and perseverance as those which have for their object the diagnosis of deposition. We recommend the work to the more advanced members of the profession, as a masterly exposition of the physical method, from the pen of a most accomplished and successful worker.

A Treatise on Diseases of the Joints. By Richard Barwell. Illustrated by Engravings on Wood. London: Churchill. 1860. 8vo, pp. 469.

Mr. Barwell comes before us as a writer not altogether unknown; his admirable essays and papers on subjects cognate to those of his present more ambitious publication, have long ere this made his name favourably known to the reading portion of his medical brethren; his articles on "inflammation and ulceration of cartilages," on "osteitis," "granulation in joint disease;" "synovitis," "cystic tumours in the neighbourhood of joints," which from time to time appeared in the Medico-Chirurgical Review, in the Edinburgh Monthly Journal, and others of our periodical literature, had prepared us at some future period to welcome from his pen a work in which we should have recorded at greater length the result of his studies and practical observation. Nor have we had to wait long; for in close attendance on those papers appears the present volume, in which we find incorporated much of what formed the subject of his previous essays, together with a vast amount of new matter. It must always be a pleasing task to the medical reviewer to speak in kind terms of the productions of the pen of one who is still but a young man; but when those writings are such as to demand all but unqualified praise, it indeed be-

comes no longer a pleasing task, but a most agreeable duty. Such duty devolves upon us on the present occasion, and we shall only be too happy if our remarks tend to induce our readers to make themselves masters of a book in which the subject is so ably handled as it is in this of Mr. Barwell's.

The work comprises eighteen chapters, in each of which some special subject is taken up, and treated in a most exhaustive manner. The third chapter would, at first glance, appear out of place in a work devoted to the special consideration of joint diseases, it being occupied with a disquisition on acute rheumatism, a subject which, however closely related it may be to such diseases, still appears to be here a little out of place; still, this is only in appearance, for it really was essential for our author to introduce it for the purpose of working out his peculiar theories on this disease in connexion with joint affections.

In his first chapter we find much of a physiological nature to instruct us; we have been long taught that the head of the femur is retained in the acetabulum by what is termed atmospheric pressure; over and over again have we had demonstrated the fact, that complete division of all the muscles, &c., surrounding this joint is not sufficient for its disarticulation; and even after its forcible dislocation, on being reintroduced, it retains its position with considerable force; this property has been hitherto attributed to atmospheric pressure, due to a vacuum supposed to exist between the head of the femur and the floor of the acetabulum. This doctrine, long believed, was supposed to have been set at rest by a series of experiments instituted by E. Weber, and communicated in Müller's Archives; they were briefly these:—all the muscles and ligaments connecting the femur to the acetabulum were divided—the limb did not fall; a hole was drilled from the pelvic side of the acetabulum into its cavity, by which the air was admitted, the atmospheric pressure consequently removed, and the limb fell out; he then replaced it, closed the hole with his finger, when the limb was again supported, but only to fall out again on the finger's being removed. These experiments had circumstantiality enough to recommend them to our attention, and were long admitted as being conclusive, until repeated as we have them now by Mr. Barwell; and his results are so contradictory to those announced by E. Weber, as to induce us to conceive that error exists somewhere. We shall insert Mr. Barwell's observations and experiments:—

"Let us examine these experiments a little closely before I relate some of my own. Either the head of the thigh-bone is in actual

contact with the acetabulum, or it is not. If they be in actual contact, cohesion of contact takes place as between any two smooth surfaces, and a hole bored in any part of those surfaces would only affect that cohesion at the place actually bored. If, on the other hand, they be not in contact, there will either be a vacuum (as far as air is concerned) between them, or there will not. If air be between them, the theory of atmospheric pressure vanishes; if there be no air between them, but a vacuum, Professor Weber did not re-establish that vacuum by merely replacing the head of a thigh-bone in the cavity. Neither on the supposition, therefore, of a vacuum in the joint cavity, nor on that of inter-cohesion of surfaces, can all the results of these experiments be explained. I cannot account for the attainment of all these phenomena, nor can I procure such results; they are incompatible with one another. One source of fallacy may have been, that, in boring the hole, Professor Weber unwittingly pushed out the head of the bone with the point of the instrument.

"I will now relate some experiments of my own; the first was performed for another purpose, and is more fully related in Chapter XV., in which it appears as Experiment III.

"Experiment I.—The subject was placed upon the table on the back; means of accurate measurement by needles, fixed one in the thigh the other in the pelvis, were adopted. A weight of 28lbs. was hung upon a system of three pairs of pulleys fastened to the ankle, thus constituting an extending force of 756lbs.:—no change in the position of the limb or in the measurements was found. A hole was made in the inner wall of the acetabulum:—still no change in the position of the limb or measurements. For the other purpose above mentioned a wedge of an inch thickness was driven in between the femur and the acetabulum: when this was removed, the head of the femur kept the same place, namely, separated from the acetabulum. The weight was unfastened, and the head of the femur returned to its normal position with a sound precisely like that produced by disarticulation.

"Experiment II., in the presence of Dr. Hyde Salter, July 6th, 1860.—The subject was placed on the back, the weights and pulleys prepared as before, and the same system of measurement adopted. The capsule of the hip was carefully laid bare without puncturing, the tendons of the psoas, and iliacus divided, and weights equal to 35 lbs. were hung on the pulleys—a hole was rapidly bored in the floor of the acetabulum—a minute and a half after this was done, a suction sound was heard, and the head of the femur came out of the cavity. The weights were lifted, and the femur replaced and tightly pressed in the cavity, the finger firmly held over the hole, but whenever any weight was allowed to hang on the thigh the head of the bone fell out, nor could I by any means find the slightest difference whether the finger were held over the hole or not. There occurred, immediately weight came on the thigh, an oozing sound, the sound of squeezing soft moist materials,

and the head of the bone fell from the cavity. In this experiment the force exerted was very large.

"Experiment III., in the presence of Dr. Hyde Salter.—The same division of muscles and other dispositions were taken. The force was a stone weight on the three-pair system of pulleys. A hole was bored in the inner floor of the acetabulum, and enlarged so that the head of the bone could be felt with the finger. During the work the caput femoris was struck once or twice with the gouge, and the femur would start outwards or rotate slightly, but the length was precisely the same, and no separation of the articular surfaces could be found. (In this instance the weight was not sufficient to overcome the cohesion of contact.) I now took off the weight and the cords, and endeavoured to dislocate the head of the bone by forcibly twisting the limb in every direction. I most nearly succeeded when the thigh was rotated outwards and adducted even beyond the middle line. Still it could not be done until the cotyloid ligament was divided, and then only partially without division of the round ligament.

"Experiment IV.—All the muscles round the capsule were divided; but the psoas was left entire. The capsule close to the edge of the cotyloid ligament was cut through, leaving that structure entire. This division should have destroyed the machinery for any intrasynovial vacuum, and the head of the bone therefore should have fallen out of the cavity, but I had the greatest difficulty to dislocate the hip, and could only partially succeed without dividing the ligamentum teres.

"The whole vacuum theory is untenable; the only fact which at all resembles it is, that cohesion of contact takes place between the joint surfaces, but this is not a vacuum: a vacuum is a space containing neither air nor other material—the cohesion we speak of takes place when there is *no space* between the parts interested."

Now, whilst giving full credit to Mr. Barwell's observations and experiments for being trustworthy, we do think that his notions are somewhat confused as to the relative position that a *vacuum* and atmospheric pressure hold to each other. It is by no means necessary for a vacuum to exist, to enable us to call atmospheric pressure into play. Any one can satisfy himself of the truth of this assertion, by simply plunging a glass tube open at both ends into water; the water rises to a certain height; firmly press the finger on the end out of the water, and you can withdraw it with the water contained in it, ready to escape the moment the finger is withdrawn. No one can pretend that a vacuum exists here, and yet the water is retained by the force of atmospheric pressure. In our opinion, Mr. Barwell has set up an imaginary figure at which he has been tilting, so far as atmospheric pressure is concerned; yet even with this idea in our mind, we must acknowledge the ingenuity and

importance of his experiments, and accept the deductions which he has made, and which seem to flow irresistibly from them.

Mr. Barwell's description of synovitis is fully up to the improved pathological views of the present day; we find him supporting M. Bonnet's views and those of the modern school of pathology, that *dryness* is not the first effect of synovitis, and this is established in a variety of ways; thus a long cherished doctrine must be now considered an exploded error, for the demonstration of which we must refer our readers to Mr. Barwell's work.

Mr. Barwell's views as to the true nature of gonorrhœal rheumatism, though novel, have much on their side to support them; he considers this disease to be "a slower form than ordinary of purulent infection produced by inflammation of the prostatic veins." This view he supports by much cogent reasoning, and some cases that bear out his arguments, though he candidly confesses that he has no dissections to refer to, as patients do not die of "gonorrhœal rheumatism." That the pus secreted by a male urethra may be in some way carried into the system, so as to contaminate it, and produce marked constitutional disturbance, has been long our conviction; that such cases are rare we admit; but that they have occurred and will occur again, must be granted by any one who has much experience in the treatment of the disease in question. Some years back we met with a case that made a profound impression on us at the time, and which in our mind could be explained on no other theory. We had under our care a gentleman suffering from gonorrhœa, which for some days seemed to progress favourably; on our arrival one day, however, we were rather surprised at being informed that he had a very severe rigor, but to account for which we could find no appreciable lesion. This condition of affairs continued for some days, the rigors being of very remarkable duration, *and occurring at varying periods of the day*—observing no regularity as to the period on which they would reappear; but no matter at what period of the day they made their appearance, never did a day elapse without a severe rigor, lasting a very long time. The most eminent members of the faculty in this city saw this gentleman with us. Every variety of treatment was fruitlessly adopted, every method of exploration in vain tried to ascertain the seat of any morbid lesion; and after some seven weeks of a continuance of this condition of affairs, the patient sank, and, to our extreme chagrin, a post-mortem examination was rigorously denied us. In this case many of the general

symptoms coincided with those in the cases recorded by Mr. Barwell—the depression of spirits, the utter hopelessness as to the result on the part of the patient being a most remarkable feature. As to the gonorrhœal discharge, that disappeared, never to return, on the first invasion of those symptoms.

Mr. Barwell's observations as to the cause of the tenderness experienced on pressing the articular surfaces together in strumous synovitis are so interesting, that we reproduce them here:—

"Another sensation, attributed with equal want of precision to ulceration of cartilages, is tenderness on pressing the joint surfaces together. The origin of this symptom, although extremely obscure, I believe myself to have detected. By questioning minutely for years past every patient that came in my way, by observing the species and succession of different sensations, and examining, when possible, the joints of those whose symptoms had been thus noted, I have come to the conclusion that this tenderness indicates, that the articular lamella has given way over a larger or smaller extent, and that the cancelli are laid bare to the joint. The actual sequence of events can in most instances be traced, the starting-pain coming on first, two or three weeks, or even more, before the tenderness supervenes. Having examined a very large number of joints, in all sorts and conditions of disease, and having, wherever it was possible, compared the symptoms with the morbid anatomy, I can affirm, that I have never heard complaint of this peculiar joint-tenderness without finding the articular lamella broken through. I have found the lamella given way in cases where there had been no joint-tenderness; but then the breaches of continuity had been either very small, or situated in some part where, in the position of the limb, it could not be pressed upon by the other bone of the joint. Grating or bony crepitation in the articulation is a symptom which, when it occurs, proves an ulceration of cartilages, throughout probably a considerable extent of both bones; but the absence of this grating by no means proves that the cartilages are sound, for granulation from the bone may be so luxuriant as to prevent the two osseous surfaces coming in contact. It not unfrequently happens, that during some part of the progress of the case, the bones will grate, and that afterwards they will altogether cease to do so. The reason of such cessation is, after what has just been said, perfectly evident.

"The constant gnawing pain, and the chief shock of the startings, are in each joint referred to some especial spot, which is so invariably the same as to be remarkable. At the shoulder this spot is in front, just below the acromion; in the elbow at the back, where the radius is jointed to the humerus. At the wrist it is at the back, outside the extensor indicis. At the hip, if there be pain at the commencement of the disease, it is situated on the inside of

the thigh, just behind the origin of the *gracilis ;* afterwards it shifts and fixes itself behind the great trochanter. At the knee, it is situated at the edge of the trochlear surface of the femur. At the ankle, in front of and below the external malleolus. Although to these rules an exception may here and there occur, it is so unusual as not to interfere with their practical value. The most patient examinations have led me to no discovery of the reason why the pain should be thus referred to particular spots; we must at present be content to accept the simple fact."

The author quotes largely from Mr. Bonnet's experiments to determine the different positions assumed in disease by the several joints; these are of a most interesting nature, but for them we must refer our readers to the work itself. A separate chapter is devoted to hip-joint diseases, that contains most of what has been written heretofore on the subject. One omission, however, struck us as being strange in a work which, in other respects, is exhaustive of its subject, and that is, that Mr. Barwell makes no allusion to Mr. O'Beirne's labours on this subject, and his suggestion of the use of mercury in its earlier stages. This, however, is one of the few exceptions to be taken to a work which must place its author amongst the first rank of those who have made the treatment of the diseases of the joints their special consideration.

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1. *On Artificial Limbs—their Construction and Application.* By Henry Heather Bigg. London: Churchill. pp. 102.

2. *On the Mechanical Appliances necessary for the Treatment of Deformities.* By Henry Heather Bigg. Part I.—*The Lower Limbs.* London: Churchill. pp. 236.

3. *Localized Movements, or Muscular Exercises, combined with Mechanical Appliances for the Treatment of Spinal Curvature, and Other Deformities.* By Henry Heather Bigg. London: Churchill. pp. 220.

We doubt much, when dear old Monro *Primus* was lying on his couch, chafing at the accident that for some months interrupted him in the active pursuit of his profession, and at the same time gave him that opportunity of studying the mode of union of a snapped tendo-Achillis of which he so earnestly availed himself, and of which he gave us subsequently so accurate an account,—we doubt much, we say, whether he ever realized to himself to its full extent the great influence his facts

were to have in advancing our treatment of affections which, until a very recent period, were ranked amongst the *opprobria* of surgery. In no other department of surgery have our exertions been attended with more brilliant results than in the treatment of those deformities which constitute the special study of the orthopœdist—so much so, that to meet with a bad form of talipes in a young subject at the present day, would almost necessarily argue one of two conditions of affairs,—either gross negligence on the part of the parents or guardians, or culpable ignorance on the part of the surgeon consulted; and for ourselves, we must confess that whenever we meet with such in persons of advanced life, we can scarce repress the sigh that instinctively obtrudes itself, that this poor creature had not been in early life subjected to that plan of treatment of which experience has demonstrated the utility. Now-a-days the consideration of such diseases, and the mode of treatment applicable to every variety of such deformities, become each year of more universal study by the man who aspires to be the practising surgeon of his district; and we believe that, as science advances, each year will only tend still further to develope this feeling on the part of our rising generation of surgeons; therefore do the class of works such as those whose titles head this article, become more loudly called for, and their study more essential to enable the student to take his proper place amongst his competitors in practice.

As in every other department of the healing art, in this branch of surgery also, in our opinion, novelty has led to abuse; and we feel that we are not overstating the case, when we assert that tenotomy is now-a-days more frequently practised in cases where it is not urgently called for, than omitted in those which require its performance for their being conducted to a successful termination. There is a degree of *eclat* attendant upon a surgical operation that never awaits the humble, but more trying, exertions of ingenuity and patience. Patients also become *impatient*,—surgeons, first wearied, and then worn out, partly by the time, care, and attention necessarily demanded at their hands in the prolonged treatment of such cases by mechanical means, without having recourse to operative interference, then by the carelessness and want of obedience on the part of the attendants; then a longer attendance involves, or *should involve*, greater expense—all which considerations induce the surgeon to have recourse to what, in this instance, is a true division of the gordian knot. These have long been our sentiments on this subject, and we are happy to find them corroborated by so able an authority as Mr. Bigg:—

"The almost immediate result attendant upon diminished muscular traction, and the consequent restoration of the limb to its normal form, in a comparatively short space of time, offered such advantages, that all who laboured under forms of distortion which were amenable to this particular plan of treatment gladly went through the trifling operation of having one or two tendons divided, when so promising a result as restoration to symmetric shape could be secured,

"It should, however, in fairness, be borne in mind, that the mere division of tendons, unless followed by the use of properly devised mechanical appliances, proves entirely unavailing; hence the surgical separation of the contracted structure forms really only an adjunct to the action of the various instruments devised for the removal of distortions; and thus the patient, unless supplied with carefully prepared apparatus, gains very little advantage from the operation. Owing to the rapid progress and ready acceptance of tenotomy, as a simple method of lessening the difficulties attendant upon the reduction of malformations, it soon became customary to consider that hardly any distortion could be effectually cured without having first been submitted to tendinous division; and hence some of the most trivial contractions, which are easily removed by the simplest mechanism, became instances of the cures capable of being wrought by the use of the knife.

"I do not mean to state that the high-minded and intelligent men of whom the principal members of the Profession are composed deliberately preferred dividing tendons for the mere purpose of proving that the cases so subjected to surgical treatment were incapable of being otherwise cured; but, under the impression that much time was saved by the proceeding, they readily concurred in any proposition calculated to lessen the trouble and pain given to the patient by an increased period of treatment.

"Neither do I mean to disparage the opinions held by others who have devoted their special attention to such operations; but as it has been advanced that surgical division of tendons reduces the contractile power of those muscles to which the tendons belong, it is surely a subject open to observation whether the removal of various slight contractions by muscular exercises and carefully arranged mechanism would not as fully secure the strength and activity of the limb as any proceeding which allows a suspicion of diminishing its muscular contractility. This is a matter, however, which future experience and observation can alone determine; in the meantime, it is a fact beyond all dispute, that in the severe forms of muscular contraction, tenotomy is the operation which, accompanied by good instrumental aid, will always succeed in the removal of deformity, and enable the limb to resume its original form. If assisted by proper exercises, the limb will also be restored to its normal and destined amount of energy, in effecting which object the third method of treatment, viz. muscular exercises, either alone, assisted by mechanism, or combined with tenotomy, are employed."

The sound principles here inculcated are too self-evident to require more on our part than to draw the reader's attention to them—that portion of the quoted passages which inculcates the necessity for a thorough knowledge of the apparatus essentially necessary to conduct the case to a successful termination, even after the operation has been skilfully performed, appears so full of truisms that further to dwell on it may appear an impertinence to our readers; yet we venture to assert that few even of the best educated of our surgeons, outside those who make orthopœdic surgery their specialty, are even superficially *up* on the varieties of ingenious apparatus now in use for the treatment of the various deformities to which our frame is subject; and the reason for this is obvious—that descriptions of these were not easily to be had: true it is that each author in his works on these subjects figures that form of apparatus which he recommends in each special lesion, but a work embracing all these has been a desideratum in English surgical literature until the appearance of Mr. Bigg's most interesting *brochure*. We cannot sufficiently express our approbation of the manner in which Mr. Biggs has executed his task, our admiration being almost equally divided between the letter-press in which each instrument is truly yet clearly described, and the plates which beautifully illustrate his explanation, and in the number of which he is lavish. In his works Mr. Biggs has clearly established that he is a *mechanician*, not merely a *mechanic*,—a distinction for which we are indebted to himself; and that he is an enthusiast in his art, may be inferred from the unction with which he dwells on some of his substitutes for nature's own work. In one instance, in particular (we allude to the case of the gentleman who preferred exhibiting the artificial hand, in consequence of its greater symmetry), were the statement to come from this side of the Channel, we fear our English brethren would not hesitate to attribute it to the force of our Hibernian character, and exclaim "how Oirish!"

Mr. Biggs' first memoir is one that must attract attention from every operative surgeon. It has frequently fallen to our lot to see an amputation performed with every regard to the *proprieties*, and yet find the surgeon, when the adoption of an artificial limb came in question, to be miserably deficient. No excuse now exists for such deficiency. Mr. Biggs has considered all such subjects in a masterly way—in a way that could only be done by one not only master of his own *métier*, but also possessed of more than a dilettante's knowledge of anatomy and surgery—indeed, in the three *brochures* here noticed, Mr. Biggs' knowledge of these subjects, when contrasted with the

general acquaintance of our profession with the details of his art, is quite sufficient to put our side to the blush; and to induce us to express a fervent hope that so laudable an example as his will not be thrown away on those who consider theirs a profession—his a trade; a sentiment to which we could never subscribe, especially after a perusal of the highly scientific views adopted by Mr. Biggs in the reduction of theory to practice.

On Surgical Diseases of Women. By I. Baker Brown, F. R. C. S., &c., &c. Second edition, revised and enlarged. London: John W. Davies. 1861. 8vo., pp. 410.

The present edition of this useful volume is considerably enlarged. The first edition, which we had the pleasure of reviewing in 1854, contained but 288 pages, whereas they have increased in the present one to 410. Much matter has been added in the shape of cases in illustration of operative procedures; but there are also several new sections. Thus we are favoured with one on intra-uterine fibrous tumours; also on hypertrophy and irritation of the clitoris; on cauliflower excrescence of the uterus; on certain diseases of the rectum, producing or simulating uterine disorder; and on certain surgical lesions connected with sterility in the female.

As, on the appearance of the first edition, we glanced over Mr. Brown's treatment of rupture of the perineum, prolapsus uteri, vaginal rectocele and cystocele; we shall not trouble our readers by drawing their attention to these subjects at present, but rather review such portions of the volume as may appear new to us. Prior to so doing, however, we may be permitted to make one or two short observations.

In 1854 our impression was, that Mr. Brown exhibited an extreme partiality for the knife; his increased experience, we perceive, has by no means weakened this predilection for edge-tools. Even in prolapsus uteri, all means of relief, except cutting and stitching, are but faintly alluded to; and as to pessaries, he says:

"Let the introduction of pessaries be avoided. I will here state my objection to them, whatever their form, as mechanical supporters. As a general rule, they are bad; they are prone to produce irritation and excoriation, and with these leucorrhœa; they are incompatible with perfect cleanliness; *and when they afford any relief at all*, they stretch and tend to keep up the relaxation of the canal."

Now, we cannot agree with Mr. Brown in this sweeping

assertion. We have *very frequently* seen, indeed it has been our general experience, great comfort and benefit arise from the application of a suitable pessary. By attention to cleanliness, cleanliness can be insured, and it is only from carelessness that leucorrhœa becomes annoying. Moreover, in the very cases Mr. Brown particularizes, we have often succeeded—so far from keeping up the relaxation of the vagina—in effecting a complete cure by the means of a series of pessaries gradually decreasing in magnitude. There are some persons who, for this disease, would not submit to Mr. Brown's operative measures; and such will not find that relief from his favourite perineal bandage, which they will experience from a comfortably fitting pessary. With such others we should have no objection to use pessaries; so that Mr. Brown will excuse us, if we continue to hold an opinion differing from his on this point.

With respect to the subject of vesico-vaginal fistula, we cannot avoid mentioning a fact which has filled us with some surprise. Mr. Brown has shown, by his chapter on this head, that he is thoroughly conversant with the literature of vesico-vaginal fistula. Taking more than due care that his own light shall not be extinguished, he pays some attention to the gentlemen of the new and old Continents, who have made the subject their study, or who have added any novelty to the treatment of the disease. But he seems to have forgotten that there is such a place as Ireland; and that Irish surgeons have also added something to the literature and treatment of vesico-vaginal fistula. He surely cannot be unacquainted with Mr. Maurice Collis' method of operating; and however Mr. Brown may prefer his method, or that of foreigners, to any other, still, when he was alluding to the history of the operation, we conceive, that courtesy alone should have induced him to mention, at least, that this school of surgery had added something new and worthy of recording. Perhaps Mr. Brown does not think it worth while recollecting we *have* surgeons in this country, and that "Bozeman and myself" are the only operators in existence worth mentioning. But we now take this opportunity of refreshing his memory, and of informing him, that we have here, also, obstetricians, whose practical experience will not sanction the practice of keeping a woman constipated for a fortnight after her delivery, even to permit a sutured perineum to heal, and on his authority. We confess that there is a great strain of vanity and egotism throughout this volume; we conceive that in many respects it is a useful one, even though *too* surgical; but the laborious efforts made to show the author's originality are truly nauseous. And yet, strange to say, in matters where

some originality might be worth possessing, the author's, by his own admission, appears rather questionable. Thus, in speaking of the treatment of tumours of the uterus, he tells us, "I put the operation in practice *before* I knew that Dr. Atlee, of Philadelphia, *and* M. Recamier, of Paris, had *suggested and carried out a principle of treatment similar in its general features.*" Again:—

"On mentioning this case, illustrative of a *new fact in medical knowledge*, to several gentlemen present at my clinical instructions in June, 1860, at the London *Surgical* Home" (ominous name), "among whom were Dr. Olier, of Lyons, and Dr. Echeveiria, of New York, but at the time house physician of the New Hospital for Paralysis in London, I learnt from these two physicians, that *they had been made acquainted with it during their attendance on M. Nélaton's lecture in Paris, and that it had been noticed by others.*"

Again:—

"The form of knives described *was my own invention*, and in use long before my friend Dr. Bozeman came to this country. During one of the many discussions I had with him, I showed him my knives, as affording great facility in denuding the edges of the fistula; when he, *in his own quiet manner*, opened his instrument-case, and took out *three knives precisely similar to mine*, made in Montgomery, United States, from his own designs and under his own directions."

As Puff says, "all that can be said of it, is that two people happened to hit on the same thought." Still it is rather unfortunate that so many persons happened to hit on the same thoughts as our author. After all, in nearly all these operations there is very little really new; it is merely applying old surgical principles and practice to new regions; the difference being, that denuded surfaces, on being maintained in contact are found to unite about the vagina and vulva, as well as about the face, &c.

As we have been speaking of originality, we cannot refrain from quoting the following passage. Before speaking of the treatment of strictures of the cervix uteri, the author calls our attention "to a set of dilating instruments" he has "*invented*," "extending the *excellent plan suggested by Mr. T. Wakley for strictures of the urethra* to the treatment of constricted os uteri." We shall detail this extension of "*Mr. Wakley's plan of treating strictures of the urethra*," and try if we can call to the mind of any of our readers, a plan adopted in one of our Dublin hospitals for the treatment of strictures, before Mr. Wakley was born. This is our author's extended novelty:—

"I have several elastic tubes, *much like catheters*, and a sort of *long stilette;* this last is pushed through the mouth of the womb through the speculum, as in the ordinary method of introducing the uterine sound. After this is done, *I pass over the stilette*, first the smallest size elastic tube, and allow it to remain for a longer or shorter period, according to the pain produced. When this has fulfilled its purpose, it is withdrawn, *and a tube of the next size larger* introduced in its place."

This manner of treating urethral stricture is *the invention* of Mr. Wakley! Why, we surely recognize here our good old friend, the "railroad catheter," used by surgeons of the Richmond Hospital so successfully when we were in our studentship, which was, we are sorry to say, long, long ago.

We shall now give a slight sketch of the new portions of Mr. Brown's volume, and, first in order, that relating to tumours of the uterus. The chief feature in this section is the treatment of intra-uterine fibrous polypus; and this treatment hinges upon a physiological fact, which on account of its *novelty* will, we are sure, surprise some of our readers who may not have been aware of it before. It is, "as *Dr. Atlee expressed it*, that '*these tumours are very imperfectly organized: consequently their vitality may be very easily destroyed*'" (!). This, we presume, is a new idea, which only lately struck the minds of Atlee and Brown; though, upon the same principle, many, many years ago, caustic was applied to *a portion* of a broadly-attached pedicle. Well, be that as it may, Mr. Brown, acting on this principle, slits the os uteri, and allows the wound to heal; he then scoops out a portion of the tumour, and subsequently supports the patient by nourishing food and tonic medicine; using frequent injections to remove the debris of the breaking-down polypus. "The division of the operation into two parts is intended," he informs us, "to furnish security against the production of pyemia; for if the incisions about the os uteri are recent and unhealed, they present an absorbing surface for the purulent discharge proceeding from the tumour above." And to the omission of the first portion of the operation, he attributes one of the fatal cases which occurred in his practice of this procedure. There is a practical point in connexion with these tumours, of some importance; Dr. Atlee *partially recognized it*, and the author, *independently of him*, also became acquainted with it, though the latter's practice may be said to be a modification only of Dr. Atlee's. We shall transcribe this in Dr. Atlee's own words, as quoted by the author, and also in the author's. Dr. Atlee says:—

"'The excessive hemorrhages which sometimes occur, arise not from the uterus itself, but from the vessels of the membrane which covers the tumours. These floodings, I think, occur in this way: the veins of the investing membrane become at times greatly engorged, in consequence of their circulation being impeded by the muscular action of the uterus, while the arteries, by reason of their more resisting coats, continue to supply them with blood. The point of least resistance must consequently be at the os uteri, as all the other parts are compressed by the contracting uterus. The veins on the surface are thus distended. The mucous membrane is delicate, and offers but little resistance to the rupture of these vessels. Now, the practice which I wish to inculcate, as based upon the above fact, and which has invariably arrested hemorrhage instantaneously, is, during hemorrhage, to pass the bistoury along the vagina into the cavity of the uterus, and make a very free incision into the most exposed portion of the tumour.'"

To which the author adds:—

"This practical recommendation coincides very nearly with one I am prepared to make—arrived at quite independently, in the course of my own experience, and which I may put in the form of a proposition; viz., That the hemorrhage attending fibrous tumours within the uterus is almost always arrested by a free incision into the os and cervix uteri, even without any operation on the tumour itself.

"I first recognized this fact about four years ago, during the treatment of a case of fibrous tumour of the womb, admitted into St. Mary's Hospital. At this time I was testing the value of the operation by enucleation, and had, in the patient referred to, freely divided the os and cervix uteri with a view to future enucleation, when I was struck by the circumstance that the flooding which had previously proceeded so copiously was arrested. Seeing this, I desisted from the further operation, and watched the case, and having ever since kept it under observation, am enabled to state that the hemorrhage has never since recurred, and that the tumour has ceased to grow. This relief to the patient was followed by great improvement of the health and strength; and although she has frequently expressed a wish to have the tumour entirely removed, I have refused my consent, since it causes her no suffering, the only evidence of its existence being afforded by its slightly pressing on the bladder."

But it was on these discoveries that our author found out M. Nélaton was in the habit of lecturing in Paris, as beforementioned. If this mode of procedure arrests the hemorrhage, we would certainly prefer it to the gouging out of a portion of a large polypus, which, killing the tumour, leaves a mass of decomposing animal tissue in long-continued connexion with a highly absorbing membrane.

With respect to the treatment of the more common forms of uterine polypi, the author mentions torsion, ligature, excision, and the actual cautery; but he gives the preference to a new method of operating, also invented by himself, but which our Irish surgeons have, long since, frequently practised. He says —"Instead of allowing the polypus to slough off (i. e. after ligature) in the ordinary way, or to remain twenty-four hours, as Dr. Churchill recommends, to excise that portion of the polypus external to the ligature *immediatelg after its application.*" "This mode of proceeding," he continues "has since been adopted by several surgeons with success." So that the surgeons who adopt this practice are *followers* in the path of Brown, in like manner as, when speaking of the operation of vesico-vaginal fistula, he designates those who operated like the American, "the *followers* of Bozeman *and myself.*" We certainly were under the impression that the excision of polypi *immediately* after the ligature had been applied, was a practice which had sometimes been adopted before Mr. Brown's time, but perhaps we dream, and that the idea is really new.

As to the section on cauliflower excrescence of the uterus, we shall give it in its entirety, that our readers may become acquainted with *all* that is *novel* on the subject:—

"The morbid growths from the uterus as yet considered belong to the 'innocent' or 'benignant' class of tumours, but those known under the name of *cauliflower excrescences are nearly related to growths of a malignant character*, and are sometimes spoken of as epithelial cancer. These excrescences grow rapidly, have a soft elastic feel, and an irregular or finely lobulated appearance, and, what is very characteristic of them, they bleed on the slightest touch, like vascular fungoid growths elsewhere. They grow from the mucous membrane of the os or cervix uteri, and consist in the appearance of a congeries of pale red, lenticular and moderately firm bodies, and are microscopically composed, according to Rokitansky, of 'hypertrophied papillæ, composed of epithelial cells, richly supplied in their interior with large and delicate vessels, and covered by a thick layer of epithelium. The enormous looped capillaries of the cauliflower excrescence explain the abundant hemorrhages, and the profuse serous discharges which attend it; whilst the absence of that solid structure which is found in other forms of epithelial cancer accounts for the favourable results that have followed its extirpation.'

"Fortunately this close ally to malignant disease may be cured, if treated early, by excision, and it does, as a rule, not re-appear. But this remedy is applicable only when the excrescence occupies a portion of the circumference of the os uteri; when it has invaded the whole of that part, then I hold operative proceedings to be useless, and well nigh unjustifiable.

"To carry out the process of excision, the patient should be placed in the lithotomy position, and the vagina drawn backwards by the 'duck-bill' (Bozeman's) forceps, just as for vaginal fistula. The excrescence should next be seized well back by a pair of vulsellum forceps, and then completely cut away by a blunt-pointed bistoury, a piece of the subjacent tissue of the os uteri being removed with it.

"If there be much bleeding, I prefer touching the surface with strong nitric acid, of course taking care to guard the surrounding parts from being corroded, and, if necessary, after this to plug the vagina with pieces of ice; beyond this it is better to apply no dressing, merely syringing out the parts with water night and morning. This simple mode of operating is far preferable to that by ligature, the latter often producing great constitutional disturbance, and, moreover, it appears by the history of recorded cases, that a far greater number die after the removal by ligature than by the knife. As far as we can judge there is in such cases as just described a very fair chance of arresting the disease for life, and certainly for some years.

"If, however, the disease is found to involve the whole, or the greater part, of the os uteri, then no possible good can arise from any operative procedure; on the contrary, the great hemorrhage produced by any interference very materially aggravates the danger, and tends to shorten life. This cannot be too much impressed upon the obstetric surgeon, as we find the contrary practice to be still in vogue with some. During the past year I met with a case of a lady who had borne thirteen children, and in whom the disease had involved the whole of the os uteri. An obstetric physician was in the habit of performing one or more operations every week for the removal of portions of the growth, although the hemorrhage was afterwards always so severe as to exhaust the patient seriously. I advised very strongly that she should do nothing but apply astringent injection, and on my recommendation she consulted two of the most eminent physicians in London, who both concurred with my advice; the result was that the poor lady returned to her home to die gradually of the disease, and was spared from the tortures of repeated operations."

For a similar reason we shall quote the new sections on irritation or hypertrophy of the clitoris:—

"Enlargement of the clitoris, sometimes accompanied by a degree of induration approaching that of cartilage, at others by a relaxed flabby state of its tissues, and always attended by a high abnormal irritability, is a condition of more frequent occurrence, I believe, than most medical men suspect, and is for the most part brought on by self-abuse. The deplorable effects of this baneful habit both on the physical and mental health, have been less considered in the case of females than of men, and yet they are of equal gravity, and probably as prevalent. Its radical cure, moreover, is fortunately in our hands, for we can readily destroy the sensibility

of the clitoris and its capability for irritation. Long-continued irritation of the clitoris figures among the causes of sterility; for besides its constitutional effects, it acts locally on the functions of the womb much in the same way, we may presume, as does excessive venery.

"The necessity for the excision or amputation of the clitoris, when much enlarged, has been recognized by surgeons generally; but I would go further and say, that this operation should be resorted to in all cases where that organ is found in an abnormal state, and where constitutional symptoms are traceable to its irritation. In most instances it is only necessary to cut off the glans, but in others I make incision through the crura posteriorly to the glans; and when the tissues are of a cartilaginous consistence, from the long duration of disease, I cut a small piece out.

"Experience has taught me that, by one or other of these plans, the irritation of the clitoris and its horrible results may frequently be cured."

The diseases of the rectum, producing or simulating uterine disorders, are, according to Mr. Baker Brown, fissure of the rectum, polypus recti, and hemorrhoids. He says:—

"I shall not attempt a general dissertation upon them, but, on the contrary, illustrate them by cases drawn from my own experience. The contiguity of the uterus and rectum, and the intimate connexion between their vascular and nervous supply, whilst affording a sufficient explanation of their close mutual sympathy, also suggest, what clinical observation still more powerfully does, the necessity of examining both the state of the rectum and uterus, particularly when, in disorders of the latter, no adequate cause can be discovered in the viscus itself to explain their presence."

Then follows the history of fifteen cases. We shall quote two of these—the first being an example of uterine disorder apparently depending upon fissure, combined with polypus of the rectum; and the second, as illustrating the existence of fissures of the rectum, piles, and polypus, as the reasonable origin of uterine derangement:—

Case I.—"*Fissure of the rectum, producing uterine symptoms and constitutional disorder.*—L.P., æt. 25, single, admitted into the 'London Surgical Home,' Dec. 22nd, 1858. She complained that she had suffered for a long time from heat and pain in the womb, with pains in the back, and a general feeling of uneasiness in her bowels. She looked ill and worn, and was suffering much from dyspepsia. Leeches had been applied to the uterus, and she had been treated for dyspepsia, and for the uneasiness in her bowels, but without deriving the least benefit. On examining the uterus, no disease could be found; menstruation was regular; there was slight leucorrhœa. On inquiry, if she had more pain at the time of, or after, an action of the bowels, she replied, 'Yes, always: that then she had a sharp shooting pain darting through the womb, and that she was obliged

to lie down, because the pain and uneasiness were so great in her bowels; in fact, that she dreaded going to the water-closet.' On passing my finger into the rectum she complained of acute pain, and I found a deep fissure just within the sphincter, and opposite to it a small pendulous polypoid body, the pea-like end of which dropped into the fissure.

"A dose of castor-oil was ordered early in the morning on the following day, and after it had acted freely the rectum was well washed out with warm-water enemas; the fissure was then divided by Copeland's blunt-pointed straight bistoury, the polypus tied, and the rectum plugged with lint soaked in sweet oil. Two grains of opium were given, and generous diet ordered.

"Dec. 25th. The bowels were opened by a castor-oil enema; afterwards the nurse applied sweet oil on her finger to the whole cut surface, and repeated it once daily.

"June 6th, 1859. Discharged quite cured. I have heard of her since as continuing perfectly well.

"*Practical Remarks.*—This case well illustrates the proposition which I have just advanced. I would also wish to observe that a very large number of fissures of the rectum are produced by these little polypoid bodies, as they will be found in almost every case if carefully sought for. It will be observed that the dressing of lint and oil was never repeated. This has been my invariable practice for the last twenty-five years, having been taught the great practical fact by my esteemed friend, the late Mr. Copeland, that it is never necessary to interfere with the parts by the painful process of reintroducing the lint, since if care be taken that the first dressing be left in for forty-eight hours, there is, after that time, no fear of union by first intention, but that, on the contrary, a healthy granulating process is set up, which continues to the end."

Case II.—"*Hemŏrrhoids, with fissure of the rectum: Uterine derangement.*—Emma C., æt. 42, married, mother of eight children; admitted into the 'London Surgical Home,' on the 11th June, 1859. She complained of having suffered for a long time from pain and bearing-down of the womb, and also from piles since her first pregnancy, twenty-two years ago. Finding that there was no disease of the womb to account for her suffering, I inquired if she suffered much pain on defæcation, and she replies, 'Yes; that when her bowels acted she had great pain; and as they were generally in a torpid state, she was constantly obliged to take aperients.' On examination of the rectum, some old external piles were found covered by skin, and within the sphincter some internal piles—at the root of one of them a deep fissure was felt, and opposite to it a large polypoid body.

"June 16th. External piles cut off, internal piles tied, fissure divided, and polypoid body twisted off at its root. The after-treatment the same as in the previous case.

"July 16th. Discharged cured."

The author does not pretend to give a general dissertation upon the causes and treatment of sterility in the female, but conceives a review of them, as a fitting topic for his book; it being most praiseworthy, "to emancipate the subject of sterility from the trammels of quackery, under which it has been so long confined, and to elucidate the circumstances with which it is connected." And he pertinently observes that sterility is a subject which has been very much neglected, even "avoided" by the profession. He arranges the whole of the causes into the following groups:—

"1. Absence of the uterus and ovaries.
2. Disease of the ovaries.
3. Atrophy of the uterus and ovaries.
4. Disease of uterus and of Fallopian tubes.
   - *a.* Hypertrophy.
   - *b.* Inflammation.
   - *c.* Fibrous tumour.
   - *d.* Cancer.
   - *e.* Polypus.
   - *f.* Neuralgia.
   - *g.* Ulceration.
5. Diseases of vagina.
   - *a.* Cancer.
   - *b.* Inflammation.
   - *c.* Leucorrhœa.
     - *A.* With acid secretion.
     - *B.* With alkaline secretion.
6. Imperforate hymen.
7. Contracted os vaginæ.
8. Contracted os or cervix uteri, from
   - *A.* Constriction.
   - *B.* Inflammation of mucous membrane.
   - *C.* Caustic applications.
9. Dysmenorrhœa.
   - *A.* Spasmodic.
   - *B.* Mechanical.
10. Amenorrhœa.
11. Menorrhagia.
    - *A.* Anæmic.
    - *B.* Plethoric.
12. Diseases of rectum.
    - *A.* Hemorrhoids (bleeding).
    - *B.* Fistula.
    - *C.* Fissure.
    - *D.* Prolapsus ani.
    - *E.* Scirrhus.
    - *F.* Ascarides.
13. Vascular tumour of meatus urinarius.
14. Excessive sexual intercourse.
15. Constant irritation of the clitoris.
16. Secondary syphilis.

"Among other causes enumerated by authors are, want of mutual affection, and loathing on the part of the woman. Without denying *in toto* the influence of the moral emotions upon the reproductiveness of the female, I am disposed to look upon these two causes just named as very problematical, and as having been suggested to the minds of inquirers baulked by failing to discover the other, and real causes of the sterility."

These groups he again considers under the following heads:—The irremovable, mechanical, local, constitutional, general and sympathetic, and reflex. With regard to treatment, he touches merely on those causes remediable by surgical interference. But as most have received attention in other portions of the work, in this chapter now under consideration he confines himself to the treatment of the sterility depending upon sympathetic causes; and he illustrates his very curt observations by two cases; one in which sterility depended upon prolapsus ani; another, in which it was caused by fissure of the rectum. The last chapter—namely, that on ovarian dropsy—is the longest of the volume, extending over 149 of the 410 pages. It may with justice be asserted that this is an excellent dissertation on the subject, and will repay the reader who carefully peruses it. During the present period of controversy on this question, it may not be out of place to give, in his own words, what the author says, as to the conditions rendering the operation of ovariotomy justifiable:—

"The surgeon should be satisfied, by most careful and repeated examination, 1, that the tumour is ovarian, and those with whom he may consult should take equal pains to form an unbiassed opinion.

"2. That the tumour is increasing, aud is a cause of annoyance and suffering to the patient, and that it will progress to a fatal issue if allowed to take its course. It is not always the large size only of a tumour which demands its extirpation; for sometimes comparatively small tumours are by their situation and connexions the cause of so much disturbance of function—as, for example, of the evacuation of the bowels and bladder, and by sympathy of the digestive process and appetite—that their removal becomes necessary for the welfare and life of the patient.

"3. That such of the different modes of treatment already described as appear to be suitable to the case, and are not incompatible with a subsequent attempt at extirpation, have been fairly tried without lasting benefit. Of those operations more especially incompatible with subsequent extirpation of the cyst, are partial ovariotomy, or the excision of a portion of the cyst, and incision into the cyst with the view of promoting its destruction by suppurative inflammation.

"The propriety of attempting a cure of ovarian disease by less severe measures than ovariotomy is most evident in the case of simple cysts, for which tapping with pressure is the appropriate remedy.

"4. That the tumour is not cancerous.

"The diagnosis of the cancerous nature of an ovarian tumour, or of the invasion of cystic disease of the ovary by cancer, is undoubtedly difficult, and at times, perhaps, impracticable. The symptoms of ovarian cancerous growth I have already noticed, and need not repeat them here. A well-grounded suspicion of malignant disease, based on the general aspect of the patient, on the rapidity of growth of the tumour, on the severity of the symptoms, and on the existence of cancerous disease in other parts, and in the patient's family, will deter the operator from meddling surgically with an ovarian tumour.

"5. That the patient is not so reduced in her general health and vigour as to render her an unfit subject for a formidable operation.

"In too many cases, as already intimated, extirpation has been resorted to in desperation, when the powers of life have been fast ebbing, and evidently unable to sustain the shock of a much less severe operation than the one carried out.

"The existence of adhesions, unless very soft and readily broken down, or thin and non-vascular, and therefore easily cut through, was formerly considered a reason for abandoning the operation of extirpation. But at the present time surgeons are bolder, and rarely find an obstacle to the completion of the operation in the adhesions about an ovarian sac, but break through them with the écraseur, or divide them by a knife or scissors after tying them, if found vascular.

"Nevertheless, adhesions may be so strong, so extensive, and so placed, that a judicious surgeon would not run the risk of attempting the removal of the whole tumour, and in such cases might advantageously resort to one of the other modes of treatment described. The circumstance of the pedicle being very short and broad, constituted another impediment to completing the extirpation of a cyst; but it is one that modern surgeons would rarely allow to frustrate their attempt, or make it unjustifiable."

With respect to the interesting question, as to the stage of the disease at which the operation should be performed, the author thus expresses himself:—

"Should we wait till life is brought into immediate and imminent danger, so that any measure, however desperate, may be justifiable which presents the faintest prospect of affording relief? Or should the earliest period be chosen after the necessity of the operation has become unequivocally apparent? On this question, a variety of opinion exists; some of the advocates for the operation only

approving of it as a forlorn hope; others, believing that it is by far the *most merciful* plan of treatment *if adopted early*, and that the reasons for running the risks will be much the strongest in the case of a young, healthy person, whose life, if spared, might be long and valuable. For my part, I adhere most strongly to the latter opinion. I consider that the risks of the operation become greater every year the disease exists. The tumour, its coats, and pedicle, are always growing, its chances of contracting adhesions are multiplied, and the patient is getting older, and most probably less able to endure the shock every year she lives. Indeed, I should as soon be persuaded to delay the operation for strangulated hernia till the symptoms of approaching gangrene became apparent, as to delay to extirpate an ovarian cyst, when I had once determined that it must be done. I believe that if recent, and otherwise favourable cases, were selected for operation, the mortality would be very small. This opinion I give advisedly, after a thoughtful review of all the cases on record, as well as of my own. After tapping and pressure have failed, and the cyst begins to fill, the chances of success in ovariotomy, as well also as in the other operations described, will be, *cæteris paribus*, determined by the promptness with which the operation is performed; and it is very important that it should not be deferred till the strength of the patient is exhausted by the disease, or until abdominal or pelvic mischief has been done by the weight or pressure of the tumour. I therefore differ from those who advise that no operative procedure take place until the tumour seriously interferes with the healthy action of the abdominal organs."

Lastly, we are given a history of twenty-five cases of ovariotomy in his own practice, out of which he had nine recoveries, a success which may appear, to some, sufficiently cheering.

In conclusion, we recommend this volume to our readers; in which, though they will find many old ideas of surgical practice dressed up as novelties, and a remarkable straining at originality in connexion with minor points, still they will certainly derive considerable profit from its pages.

PART III.

MEDICAL MISCELLANY.

TRANSACTIONS OF THE COUNTY AND CITY OF CORK MEDICAL AND SURGICAL SOCIETY[a].

(*Continued from* Vol. xxxi., p. 465.)

SESSION 1860–61.

APRIL 10, 1861.

THE PRESIDENT, DR. TANNER, in the Chair.

Cases of Epidemic Puerperal Fever. By DENIS CHARLES O'CONNOR, A.B., MB; Professor, Queen's College.—It is well known to the members of this Society, that puerperal fever, in an epidemic form, prevailed in this city and environs during the winter months of the years 1859–60. It was my misfortune to have met, during that period, with some fatal cases of this dreadful malady, which I shall detail to the Society, and then subjoin some observations on the general character of the epidemic.

In March, 1859, I was called to see Mrs. P——. The history of her case, previous to my visit, was detailed to me as follows:—About the second month of pregnancy she had a premature birth; and being a robust, healthy person, she left her bed on the third day, and lived as usual. On the following day she was seized with rigor, and a smart pain in the abdomen, for which she was leeched. The quantity of blood drawn was not great, still debility and great prostration set in. When I saw her on the subsequent day, she could scarcely move in bed, and could only speak in the lowest whisper; her pulse was extremely quick and weak, and the breathing hurried; there was no trace of pain in the abdomen, but it was flabby and swollen. The body was cool, but not cold; the tongue moist, coated with a loose white fur; the debility increased during the next twenty-four hours, and the intellect became slightly disturbed, especially after waking

[a] These Reports have been furnished to us by Dr. S. Henry Hobart, Secretary to the Society.—ED.

from slight unrefreshing slumbers. On the next day she was in wild delirium, making violent efforts to get out of the bed, and tossing her hands and feet about in the wildest manner. Still the pulse continued quick and weak, and the body cool; and she soon died, as if from exhaustion of the powers of life, without any organ being sufficiently affected to produce this result.

In the October after the same year, I attended Mrs. G —— in her confinement of her sixth child. The labour was quick and natural, and unattended with any accident; but she had a feeble constitution, and suffered much during the previous week from attendance on her husband, who had been affected with malignant sore throat. On the day after her confinement, she had violent rigors, with slight pain over the uterus, which was subdued by the application of turpentine stupes. In the middle of the night, however, it returned with great severity; leeches were applied, but with little effect, except perhaps to reduce her strength; vomiting set in, with quick pulse, collapsed features, hurried breathing, cold skin; and death followed, in about forty-eight hours from the first attack of shivering.

In the end of November, I attended Mrs. M. in her third confinement. Her labour was concluded in about four hours, and she appeared to be getting on perfectly well for the first day. On the second, her pulse became extremely quick, with great heat of skin, some headach, and a diffused dark-red rash over the entire body; there was also redness in the pharynx; there was no tenderness on pressure, nor pain in the abdomen; and the lochia existed to some degree, with slight secretion of milk. The following night she was very restless, and the nurse remarked that she was not able to articulate some words; and in the morning she made the same remark herself, saying, that "the word she wanted to use would not come to her lips, but some other word she did not want." This was said in a frivolous, jaunty manner, which made me hope the difficulty of utterance was merely hysterical. It should be remarked that this lady twice before had a similar rash, which was mistaken for scarlatina; and that she was of a very nervous temperament, her pulse becoming excited by the most trifling causes. On this account I was confident her symptoms were produced by the fever, attending on the eruption combined with lactation.

However, the next night all the unfavourable symptoms were aggravated; the pulse could scarcely be counted; the breathing was hurried and irregular; the rash became more livid, especially on the face and neck; and the conjunctiva was deeply injected. Her appearance was altogether like that of one threatened with impending suffocation. The inability to express herself increased; still her intelligence was not in the least impaired, as, when roused by some want or necessity, she expressed herself clearly; and she was always aware when she did not use the correct word. There was a little vomiting on that night, which was easily checked. In this state she lingered for two days, and died without any symptoms indicating the existence of any severe organic disease.

In the following month I attended Mrs. C. in her first confinement, which was terminated most satisfactorily in about six hours. She was a remarkably strong young woman, and indulged a good appetite up to the time of her confinement; but having had some uterine hemorrhage six weeks previously, she was confined to her room or to her house during the greater part of the time. This was the only unfavourable circumstance to which she had been exposed. The evening of the day after her confinement, she was seized with a violent rigor, while I happened to be in the room. It was as severe as the cold stage of ague; and there was a look of anguish and distress in her countenance, quite unusual in the chill which ushers in the secretion of milk. At this time the epidemic was producing great havoc through the city, and I became greatly alarmed for the safety of my patient. However, she passed the night well, and next day was as well as most persons after a first confinement. On the following day the pulse rose very much; there were great heat of skin, and some tenderness in the right hypochondra, but not more than is found in the majority of cases. There was some discharge of the lochia, but no secretion of milk. The tenderness in the abdomen was relieved by turpentine stupes, and the action of some aperient medicine. There was no tenderness traceable to the uterus. The fever continued for two days, with variable pain in the same region. On the evening of the sixth day after her confinement, the pain in the abdomen became more general, and was intense for some hours. It was relieved by leeches and a starch and laudanum injection; still the tenderness and pain, though not insufferable, were always present; and the pulse rose to 140, from which it never receded till death. The intellect was undisturbed, and she was cheerful and confident at intervals. There was never vomiting, diarrhœa, or constipation, the bowels always obeying the action of medicine when required. The never-ceasing quickness of pulse, with hurried breathing, appeared to be the only symptoms of danger. A light delirium, with delusions of a cheerful kind, set in on the evening before her death, which took place on the 9th day after her confinement.

During the winter and spring I attended some other cases of this disease in a milder form, which are not worth bringing under the notice of the Society. Several also occurred in the lying-in hospital of this city, and there were few practitioners who did not meet with one or more fatal cases. The disease entirely disappeared at the approach of summer. Every physician in much practice must have observed at the same time several cases of erysipelas, malignant sore throat, and a disposition to phlebitis from slight hurts or injuries. The coincidence of these diseases with puerperal fever has been frequently before remarked to exist, and would lead to the conclusion that they all arise from the same state of the atmosphere,—the variety of the symptoms depending on the nature of the organs affected. A different opinion has been held by many, who contend that puerperal fever is an essential fever, the inflammatory symp-

toms being only secondary. Unfortunately, I had no opportunity of testing the truth of this statement in the cases which I have related, by a post-mortem examination; but I am convinced, if I had, inflammation more or less would be found to have existed in all. The great variety in the symptoms may be accounted for thus:— In the first and fourth cases there was scarcely any tenderness on pressure, and we might assume the erysipelatous inflammation did not extend beyond the mucous and muscular structure of the uterus; and that the patients died through the irritative fever produced by inflammation of an organ so peculiar as the uterus after pregnancy. In the second case the inflammation spread rapidly to the peritoneum, covering all the abdominal organs, and we had all the symptoms of idiopathic peritonitis present. In the fourth case the inflammation was more obscure and insidious, never having passed beyond the peritoneum covering the uterus; and accordingly there was no vomiting, constipation, strangury, or suppression of urine. The delirium in these cases was entirely different from what is observed in cases of ordinary fever, but resembled completely what is observed in fits of hysteria, being fitful, capricious, and intermittent, and often of a trival character. In neither case was there the brown, dry tongue, or the prostration of bodily energy and intellect which would attend on pyemia. The belief that puerperal fever resembles continued fevers has produced, as a natural sequence, the conviction that it is also highly contagious and infectious. This opinion has produced much misery to physicians, to patients, their attendants, and friends, and requires to be carefully examined before it is adopted. My experience of the late epidemic leads me to a very different conclusion. In my own cases, a month elapsed between each of those which proved fatal, and it could not be supposed I could carry the contagious matter for so long a period about me; and, while attending these cases, I was in close communication with others who never got the disease. Nearly every physician in Cork had one or two cases in his own practice, without having had communication with any of the others thus affected.

The strongest argument used by those who advocate this opinion is founded on the fact, that several cases have occurred consecutively in the practice of certain physicians. The same argument for a long time upheld the supposed sciences of palmistry and astrology, and is used to prop up every superstition and error, from witchcraft to Turkish baths. I cannot conceive how there could be a special poison emanating from the bodies of individuals at a certain period of their lives, innocuous to every one else except those who are in a similar position to themselves; affecting the puerperal female, but leaving untouched nurses, physicians, and attendants, and never injuring the pregnant female till the day after her confinement. Again, women in the last months of pregnancy are much at home, and therefore little exposed to contagion in the ordinary way. But it is said to be communicated by the physician or nurse—why not, then, typhus, scarlatina, measles, &c., be communicated in the same

manner? and how seldom do we find puerperal females affected by these diseases!

It is admitted by all that the affection might be produced solely by the epidemic influence. If this be a sufficient cause, it is also the simplest explanation; and there is, therefore, no necessity to seek for one more difficult to understand and impossible to prove. If a besieging army are firing volleys into a town, the probability that a person found wounded in the street received his injury from the enemy, would be much greater than that it was inflicted by some bystander. It is stated, again, that this disease prevailing most in hospitals is an additional proof of its being contagious; but every one must admit that if an epidemic of any kind prevails, an hospital is the place most favourable for its development,—owing to the imperfect ventilation and crowded state even of those which are the best administered. Tetanus has prevailed in midwifery hospitals, but is not on that account deemed to be contagious.

I have thus hastily thrown together a few remarks on this important subject, having observed the great amount of unnecessary misery produced during the prevalence of the late epidemic by the belief in the contagious nature of this disease. It is the duty of physicians to guide and direct public opinion on medical subjects, and not, as too often occurs, to yield to ignorant prejudices without a full examination of their truth; and I have no doubt if the same process of reasoning be applied to this subject as to other branches of knowledge, we would soon cease to believe in the transmission of puerperal fever by third parties.

Hypertrophy of Liver with Abscess.—Dr. Finn, having previously made some remarks on the comparative frequency of hepatic affections in this city during the past season, exhibited pathological specimens of the above, and communicated the following particulars:—

Jeremiah Keleher, aged 34, a porter, was admitted into the North Infirmary, on the 23rd March last, in a state of great prostration, complaining of acute pain of the left side. This pain dated from two months previous, and was attributed to a sudden muscular effort on the occasion of removing heavy luggage from an omnibus. He had been a short time under treatment previous to his admission to the North Infirmary. He stated that his health had been always good up to the period of the supervention of the pain above noticed. His face was sallow; the conjunctivæ were slightly injected with bile; and his physiognomy generally suggested the existence of organic disease of the liver. Pulse 90, feeble; tongue densely coated; complete loss of appetite. The lower-third of chest, and the hypochondrium at right side measured nearly two inches more than the corresponding parts at the opposite side.

On the 24th March, he suffered, for the first time, from a prolonged rigor, which recurred four times subsequently; the last

having taken place on the 12th of April, the day previous to that of his death.

Autopsy.—Liver congested and hypertrophied, weighing seven pounds. A large abscess occupied the upper portion of the right lobe, resting on the diaphragm. The left lobe was rather atrophied.

Severe Headache cured by the use of the Turkish Bath. By Dr. J. Henry Hobart, Assistant-Surgeon, North Infirmary, Cork.

As I conceive it only fair, when an opportunity offers of illustrating the effects of a new and comparatively untried remedy, to bring the facts so illustrating it before the notice of the profession, I have ventured to come forward with the following case, of the correctness of which I can speak with the greater confidence, as I have myself been the subject of it.

During the greater part of last summer I was a good deal annoyed by headaches, which appeared to be in a great measure dependent on a torpid state of the liver, as they were generally much relieved by a dose of blue pill and extract of colocynth. At first the pain would go off so long as I was busily occupied with my hospital, or other duties; but after about a month it became so distressing as to interfere much with the discharge of my duties. I got out of spirits with every thing, felt society irksome, and longed to be alone; but the moment I got home, and the mind was less occupied, the pain became much worse; and by this time cathartics gave but partial and very temporary relief. At one time, thinking it possible that some hardened accumulation might exist in the cœcum or colon, and as moderate cathartics had lost their effect, I took a large quantity of exceedingly active purgative medicines; these acted abundantly, though not with excessive violence, but very little benefit was derived therefrom. The appetite was tolerably good; want of food aggravated the headache, it was also worse after a full meal, or after taking any fermented liquor; but a small quantity of food often had a good effect; for months together the greater part of the night was generally spent in wakeful misery; a sleep seldom lasting more than from two to four hours, when it was interrupted by the severity of the pain, and would not again come on until after sitting up in the bed, walking about the room, or attempting to read bits and scraps of some amusing book, by which means I might hope, after an hour or two, to get another doze; and on two occasions I positively did not get one moment's sleep for the entire night.

Any attempt to read brought on the headach, or rather, as it was scarcely ever absent, aggravated it to such a degree that the book had to be laid aside almost as soon as it was taken up, and even light reading could only be occasionally indulged in. On some four or five occasions the stomach became desperately sick; previous to, and during which attack, the pain was particularly severe; but after the stomach became quiet, the head was a good

deal relieved; at one period the pain, used to be worst in the morning, at another period in the evenings, when it would be occasionally very much relieved by a nap after dinner; but at other times the exacerbations occurred without any regularity. At length I went to the country for a week, and derived some benefit from the change of air; this was followed, after a short interval, by a week at Killarney, which was also decidedly useful; and on my return from this, having to see an old gentleman at a distance of about a mile and a half from town daily, I made it a matter of duty to walk there and back; the case required my attendance for over two months, during which time the headaches gradually abated; and I attribute much of the amendment to the regular exercise which I thus took; it was not, however, until the middle of October that I felt myself perfectly well again.

I should have mentioned that, after the use of purgatives as already mentioned, I adopted a mild tonic treatment, taking occasionally small doses of blue and rhubarb pill, and subsequently followed it with quinia, but could not say whether the recovery was assisted or not by these means.

About the beginning of February last I again began to suffer from headaches of the same character as before; they commenced with greater severity and increased with greater rapidity than those of the former attack, so that before the end of the month I was unable to read by day, and could scarcely sleep by night; the stomach also became sick on two occcasions, precisely as it had done last year; indeed, all the symptoms which had been then present now returned; I became greatly alarmed about myself, thinking that I was in for six months of suffering again; and, after trying the effects of moderate purgatives, I called on my friend Dr. Cummins, who advised me to try the effect of Turkish baths, which I was at first to take twice weekly, then to reduce them to one each week as soon as a decided improvement was felt, and by and by they might be taken at still longer intervals according to circumstances. Dr. Cummins spoke with such confidence of the effect of the bath, that I was induced to try it, though I certainly should not have ventured at the time to recommend a patient under similar circumstances to do so. The first bath was taken on February 27; Dr. Cummins had told me that it was very probable I might feel the head worse after the first bath or two, and I fully expected it to be so, but was agreeably surprised to find that no decidedly bad effect was produced. There was as severe a headach as usual, but it appeared to be of a somewhat different character, and to be aggravated by a sense of extreme fatigue which was present; next day, after a fair night's rest, I felt better than I had been for a considerable time; but as the pain had always been worse some days than others, this seeming improvement might be only temporary.

March 2. The headach, though very distressing occasionally,

has not attained its maximum severity since; had another bath to-day.

6th. Have felt the headaches since; but, though still severe, they have been by no means as bad as formerly; had another bath.

11th. Head decidedly better since the last bath; had another to-day.

April 20th. Have taken four baths since last report, and have not had the least trace of a headach for some weeks past. In the above case the relief experienced during the night and day following each bath was so decided and uniform, that it was impossible to doubt the connexion of cause and effect; it was as manifest a case of cure as was ever accomplished by medicine; and though I am now just as far as ever from believing that the Turkish bath is likely to supersede the use of medicine, I think the case is quite sufficient to show that in certain conditions it may be useful. That the eliminative functions of the skin are of very great importance, there cannot be the slightest doubt, while there is no excretory organ over which we have less control by medicine; and moreover, when medicine does produce full diaphoresis, it renders the party for the time being very susceptible of taking cold. Now, it was the penalty of man's fall that he should earn his bread by the sweat of his brow, and it appears as if this penalty cannot be avoided with impunity. The rustic who toils in the field, or the country gentleman who spends his spare time in hunting and shooting, and who while thus employed brings on profuse perspiration occasionally, is usually robust and healthy; but the citizen who leads a sedentary life scarcely knows what it is to perspire freely; the functions of the skin become seriously impaired, and increased duty is thrown on other organs, for which they are not prepared, hence much of the delicacy of those whose duties confine them much to the house. But in the Turkish bath we have a sure means of producing diaphoresis to the fullest extent, of keeping it up as long as we conceive it desirable, of suspending its excessive action at any moment, and of repeating, it as often as we may wish, without the slightest danger of our patient taking cold. I do not contend for its being as valuable as active exercise; but for a man of confirmed sedentary habits, who, for want of energy, if not of power, cannot induce himself to make the necessary effort, I do believe that the Turkish bath is the best and safest substitute for it that can be recommended by the judicious physician. It may be said that the bath is a dangerous remedy, that lives have been lost in some cases, and that in other instances much injury has been done; but even admitting these facts, they merely bring the bath on a level with some of our most valuable medicines. How many hundreds have lost their lives by the injudicious use of mercury, and how many thousands have been injured by its abuse, and yet how universally it is employed at the present day! And if it be contended that those bad effects of mercury are owing to the want of care or judgment in its administration, it may, with at least equal justice, be held that any ill effects

that may have occurred from the Turkish bath have been owing to the same causes. It is a new remedy; we none of us yet know much about its mode of action on different constitutions; and it is usually administered by ignorant attendants, at the option of the parties themselves, and without the direction or sanction of any medical man. The extreme uncertainty of temperature of some baths is also a serious error. I have known the outer room of one bath to vary, from day to day, nearly 30°. I trust, however, the time may not be far distant when a bath will be established by a company of medical men, where patients will be admitted only on producing a prescription from a physician, and shall then be treated in strict accordance with his prescription, and where the many defects of detail will be remedied; and that the bath, thus improved, may become as established an agent with the medical profession as blisters, leeches, &c., are at the present day.

Case of Remarkable Tenacity of Life in Old Age, with Observations on Diet and Stimulants. By William J. Cummins, M. D.

December 16th. Captain L——, aged 84, had enjoyed good health during a long life, until about a week since, when, after eating some roast pork, the stomach got out of order, and has continued so ever since. He is now complaining of severe paroxismal pain in the epigastric region, relieved only when vomiting, which is attended by violent straining, comes on. Rigors generally precede the attack of pain, and the latter is sometimes felt also in the back; no epigastric or hepatic tenderness; pulse quiet and regular; never had gout; tongue a little coated; bowels, which are generally regular, are now confined. I ordered him an aperient pill at bed-time, and a drachm of citrate of magnesia, three times a day. In the evening he had a severe return of the pain, and after it the pulse rose to 100, skin being hot, and urine scanty, and high-coloured.

17th. Pulse natural; tongue a little white; bowels well opened; no return of pain, rigors, or vomiting.

18th. No pain, rigors, or vomiting since; urine scanty, high-coloured, depositing a red precipitate when cool. Half a drachm of compound spirit of ether and compound spirit of juniper to be taken in the citrate of magnesia draught three times a day. Repeat pill at bed-time.

19th. At 5 P. M. had a return of pain, rigors, and vomiting; but spent a good night.

20th. Appears convalescent. Omit medicine.

23rd. Has had a return of rigors, &c., and complains of soreness over hepatic region when he turns on the left side. Ordered five grains of quina, three times a day.

24th. Bad night; had a return of all the old symptoms, more severely than ever; there is great fulness, but no tendeness of epigastrium; liver somewhat enlarged; tongue coated, pulse 74. There is now bile in the urine; and the stools are quite white; but there is no jaundice. Omit mixture; five grains of blue pill; draught

of castor oil with tincture of opium; stupes to epigastrium; blister over liver.

25th. Bowels well opened, still white; vomiting and pain continue at intervals, but not so severe.

27th. Slept well, till 2 A. M; then became restless, and had a slight return of pain, and vomiting; alvine secretions contain bile; epigastrium and abdomen less prominent; pulse 60, weak; tongue coated; five grains of blue pill, at bed-time; repeat the quinia as before; claret, brandy, and broth. Spent a good day, no return of vomiting; took nourishment well.

28th. Good night; no return of bad symptoms; pulse 64; tongue coated; continue pill at bed time, and an aperient draught in the morning.

29th. Better; alvine secretions natural. Continue pill.

30th. At 2 A. M. attacked again with rigor, vomiting, and severe epigastric pain; pulse 84; tongue thickly coated; five grains of blue pill, morning and evening. Omit quinia mixture.

31st. Much better; no return of bad symptoms; to return to quinia, and pill only at bed-time.

January 1st. The rigors, &c., recurred at 2 A. M. even more severely than usual. Continue mixture and pill.

2nd. Better. Omit the mixture.

6th. Vomiting returns occasionally, with a very coated tongue, and pain of right side; bowels open, natural; to take a mixture containing ammonia, &c.

8th. I ordered him a pill, containing a grain of opium, last night, to relieve troublesome pruritus which was keeping him awake; soon after taking it the rigors, and vomiting returned; and he became heavy and unconscious, urine passing involuntarily. This morning better; pulse 64, vomiting gone; continue mixture; diet of brandy, milk, and lime-water.

January 9th. Spent a good day; urine depositing lithates; ordered a mixture of ammonia, ether, &c.

10th. Had a return of pain and vomiting, with some rigors, attended with much flatulence; ordered a pill containing compound rhubarb, capsicum, and extract of nux vomica, in small doses.

11th. Much better; tongue nearly clean; in the evening he was again attacked with flatulence and retching.

12th. Vomiting recurred at two P. M., with violent pain, rigors, flatulence, and retching; after the attack, he was very weak, and appeared to be sinking, the extremities being cold, and the pulse feeble and intermitting; brandy aroused him, but he had returns of pain and retching during the day; an enema brought away some masses of hard, whitish, feculent matter; he made little water; complains much of a burning sensation in the stomach and along the œsophagus; ordered 15 grains of bicarbonate of potash, when vomiting or the burning sensation is present; 5 grains of blue pill at bed-time; a draught of rhubarb and magnesia in the morning; and brandy, milk, and lime-water in spoonfuls during the day and night.

13th. Had one or two slight returns of vomiting, accompanied by much pain since; urine scanty; contains bile, but no albumen; he is very weak; pulse intermits every three beats; ordered blue pill, as before; exclusive diet of milk, lime-water, and brandy, and enemata of chicken-broth.

14th. Pulse regular, 54; retains nutritive enemata well; urine clear, and very copious; blister to epigastrium; continue the treatment as before.

15th. No return of vomiting; pulse regular and weak; treatment as before.

16th. Good night; alvine discharges bilious; urine clear and plentiful; pulse was a little intermittent and weak in the evening.

17th. Vomited a little; pulse feeble, 34; the alkaline powders always allay any tendency to vomiting.

18th. Had an inclination to vomit once only; the powder checked it.

19th. Vomited a little once, but bears nourishment (*i. e.*, milk and lime-water, brandy, and enemata) well.

22nd. Improved in every respect; tongue nearly clean; pulse regular, 60; to have a little chop and a mild rhubarb draught in the morning.

24th. Had not much appetite for the chop, and scarcely tasted it; to have oysters.

25th. Going on well; to have a mixture containing bicarbonate of potash, tincture of orange-peel, and infusion of columbo, three times a day.

Convalescence after this was rapid; and he is this day (April 5th) in the best health, driving into town (a distance of two miles) occasionally, without fatigue.

P. S.—I examined the stools constantly for biliary calculi, but did not find a single one.

The paroxysms of rigor, pain, and vomiting which occurred in this case seemed at first to be of an aguish character, with congestion, and perhaps sub-acute inflammation of liver and stomach; the first four occurred on the 16th, 19th, 23rd, and 24th of December, at irregular periods of the day; quinia, in five-grain doses, three times a day did not stop them, and even seemed to render them more decidedly periodic, as the next three paroxysms, which occurred on the 27th, 30th, and 1st January, commenced regularly at 2 A. M.; on the 2nd the quinia was omitted, and there then was an interval which lasted till the 8th, after which they recurred on the 10th. 11th, and 12th, at variable hours, the last leaving him in a state of prostration which well nigh proved fatal. From this out they declined in intensity on alkaline treatment, the rigors ceasing entirely.

This gentleman had arrived at the age of eighty-four without ever having had gout, and it seemed exceedingly improbable that at *such an age* the disease would be ushered in by an irregular fit; but treatment which first fixed a negative upon the diagnosis of ague, by the paroxysms becoming rather more regular under the influence

of quinia, suggested a probability of the disease being gout, by the decided amendment which followed upon the administration of potash. If the subject had been gouty, the symptoms would early have suggested the existence of an irregular attack of the disease; but, under the circumstances, it is difficult to believe such to have been the pathological condition they indicated.

Another point of interest in the case I have detailed is, that a patient at such an age, and suffering from so severe a disease, should have been supported for a considerable time on milk and brandy alone, assisted only when the pulse became very intermittent and weak by enemata of chicken-broth.

By these means alone he was kept up from the 8th to the 22nd of January, a period of fourteen days, during a great part of which he was as low as he well could be; pulse sometimes scarcely to be felt, or with an appalling interval between its beats. Perhaps there is some truth in a remark which I have heard made, that physicians are sometimes too prone to force animal broths, jellies, and even meat, which every one knows are tedious and difficult of digestion just in proportion to the amount of nutriment they contain, upon an unwilling stomach.

There is much excuse for such an over-anxiety to sustain the patient, when we reflect upon the tendency of the absorbents to prey upon the system, so soon as the pabulum which the all-important functions of circulation and respiration require is from any cause wanting; but we should beware lest we defeat the very object we have in view, by loading the alimentary canal with what cannot be digested, and thereby postponing still further the period when food can be metamorphosed into blood-corpuscles. It is certainly more consistent with both reason and experience to administer the less nutritious, but more digestible, articles of which the stomach is more tolerant, and which remain in the organ a much shorter time. Milk is the food which nature has prepared for the weak digestion of the infant, and enriched with all the principles which the system requires in their most assimilable form. It has fallen somewhat into disuse in disease, I suppose because a large draught of it taken rapidly into the stomach is found to rest there as a heavy indigestible mass, disordering the function of the organ. The cause of this is to be found in the rapid change into curds and whey which the acid gastric secretions produce, a change which any one who has seen the large mass of curd remaining after the process of whey-making, will believe to impose an almost impossible task on the gastric juice. When lime-water is added to milk, however, in proper proportions, the gastric secretions are more or less neutralized, and either no separation at all, or else a gradual one, takes place in the compound, so that it can be often digested by a stomach incapable of digesting any other diet. I believe it was Dr. Budd who pointed out that milk is intended by nature to be sucked, rather than taken in a full draught; and that by applying this dictate of nature, and directing it to be sipped, or else by mixing it with

some light farinaceous food, so as mechanically to divide it, and enable its caseine to coagulate in strata which the gastric juice can easily come at and act upon, we may prescribe it as a useful diet for the dyspeptic.

It has often fallen to my lot to see invalids incapable of the least exertion, and not suffering from any particular drain upon the system, forcing upon themselves strong animal food, supposing that they were thereby doing the best thing they could to remove their weakness. This is a practice to be reprobated under such circumstances; for as there is little disintegration of tissue going on, little waste of muscular, and it may be nervous matter, a more moderate nutrition conduces more to the restoration of health. There are many cases of disease, however, where much and strong nourishment is required by the system to compensate for a wasting discharge, where yet the digestive organs are incapable of digesting or assimilating it; and there are still other cases where nutrition being almost in abeyance, the powers of life would rapidly ebb away, unless we had some substitute for it. These are the cases that require the use of stimulants[a], without which circulation and respiration would soon be at an end. To the first of these classes my patient belonged, and without brandy he would almost certainly have sunk; I therefore combined it with the milk and lime-water, and had good reason to congratulate myself upon having done so. In giving stimulants, however, in such cases, we cannot bear too much in mind that they are intended as a diet, or rather as a substitute for it where it cannot be digested; and that, as they are so much more rapidly taken into the blood than food, which has to undergo previous digestion and assimilation, the intervals between each dose should be short, and the quantity taken small,—else, instead of nourishing, it will first stimulate, and then depress. To a close attention to this rule I attribute much of the benefit my patient derived from it; and I only changed the mode of administering it on the morning he appeared to be sinking, requiring a large dose at once to *stimulate directly* the heart.

This distinction between the use of alcohol as a *stimulant* and a *diet* in disease, though founded on my observation of its effects at the bed-side, may be looked upon as a theory which cannot be proved; I am aware that it may be considered directly opposed to the chemico-physiological doctrines of Liebig, and I am neither able nor willing to take up the time of the Society, by entering into the debated question as to whether the hydro-carbons can be converted into tissue or not; but on this point I may say that, even admitting the correctness of Liebig's theory, my views are tenable, as any nutriment which can minister to respiration economizes whatever lit-

[a] I do not mean to say that stimulants are not also useful in inflammatory exudation, as Dr. Hughes Bennett remarks, to send the amount of blood to the affected part which is necessary for the organization and removal of the exudation.

tle azotized nourishment the weak digestion is able to act upon, and thus becomes a diet.

The observation which every physician of experience must have constantly forced upon him, that many a confirmed drunkard has his digestion so impaired, and at the same time his system so changed, that not only is he able to live almost without food, but is equal to performing exhausting labour, with muscles almost solely produced, and reproduced, from his alcoholic food, tends to support the view I have brought forward; and I doubt not that other facts in its favour may suggest themselves to your minds; but, however that may be, I am sure you will agree with me in the clinical fact, that as "drink is," to use our Irish idiom, "meat and drink to the drunkard," so, in disease, alcohol is a pabulum which may sustain life for a considerable period.

Case of Successful Removal of a large portion of the Lower Jaw, for an Epulis Tumour. By Richard Kelly, M. B., L.R.C.S.I., and Medical Attendant to the Drogheda Workhouse, the Fever Hospital, and St. Peter's Dispensary.

Sally M'Donnell, of Clones, Co. Monahan, aged 25 years, unmarried; of a bilious temperament; was admitted into the Drogheda Workhouse Infirmary, on the 1st of May 1861. She stated that six years previous to her admission, she had had a molar tooth extracted; and after its removal, she became subject to constant pain in the lower jaw; and that gradually all the teeth in that bone fell out, with the exception of the left front incisor. Six months after the extraction of the tooth, a tumour appeared in the site of the extracted tooth, which grew in a few months to the size of a walnut, when she applied to Dr. Heney, medical officer, Clones Workhouse, who placed her in the workhouse hospital, and removed the tumour, and applied the actual cautery to the bleeding surface. She left the hospital, six weeks subsequent, well, and continued so for twelve months; when, at the expiration of that period, she felt a return of the pain in her jaw, and the tumour reappeared, but grew very slowly. Her general health has been very indifferent, being subject to constant headach, vomiting after meals, bleeding from the tumour, and sleeplessness. Being unable to masticate, she has lived on fluids; speaking gives her great pain; left side of the face projects considerably, and deforms her very much.

On examination, I found a tumour the size of a large walnut, situated on the left side of the lower jaw-bone; purple on the surface, bleeding on the slightest pressure, occupying the space from the left lateral incisor to the second molar tooth, beneath the vascular layer; it was fibrous, and slightly elastic. The base of the tu-

mour was bony, and produced an enlargement of the base of the jaw-bone.

On the 30th of May, I held a consultation with my friends, Drs. Pentland and Delahoyde, of Drogheda, together with Drs. Hamilton and Nicholls, of Navan; when it was unanimously agreed upon that any other operation but removal of the diseased portion of the jaw-bone would be useless. Accordingly, on the 10th of May I operated as follows, assisted by Drs. Pentland, Delahoyde, Evans, and Adrien:—First having made an incision from the angle to the symphysis, along the base of the jaw, I passed the knife into the mouth, and separated the cheek from the gum. I then introduced the knife at the symphysis, on the inside of the bone, and detached the connexions with the greatest facility; I sawed through the bone at the extremities, with Fergusson's saw, and removed two inches of the bone. No hemorrhage followed, and I did not dress the wound for an hour after the operation (fearing any might occur), when six sutures were inserted, a bandage and lint, with cold water were applied. Union by the first intention took place, the ligatures were removed on the third day, and nothing occurred to interfere with her recovery.

July 1st. Present condition—no appearance of deformity; the interspace between the cut extremities of the bone completely filled up with cartilaginous deposit; motions of the jaw perfect, except that in the act of laughing the jaw is drawn a little to the right side; speaks and swallows without any inconvenience, and the wound is concealed under the base of the jaw; general health quite restored.

Remarks.—I was induced to operate in this case in the foregoing manner, as I considered the tumour could not be malignant from its slow development, absence of any glandular disease, the extent to which the bone was involved, and the constitutional symptoms being slight.

The rapid development of cartilage between the cut extremities is remarkable, and also no hemorrhage having occurred during the operation. The facility with which the bone was cut I attribute to Fergusson's saw, and consider it a matter of essential consequence in the operation; owing to its use, it occupied me but a few minutes.

On Catheterism of the Eustachian Tube, and on the Pharyngoscope. By DR. VOLTOLINI, District-physician in Breslau.

DR. SEMELEDER, of Vienna, has published in the Austrian Journal of Practical Medicine[a] an interesting essay on the above subject; but

[a] Oster Zeitschrift für Praktische Heilkunde, 1860, No. 21.

he therein attributes to special aurists a peculiar dexterity in catheterising, so that it might be supposed that the employment of the pharyngoscope, at least for the purpose of controlling the situation of the catheter, might not be so necessary to such practitioners. It will therefore not be superfluous for me, as a practical aurist, to write something on the catheterism of the Eustachian tube, especially as I do not only daily practise this operation, but also almost daily employ the pharyngoscope; indeed, I think it even necessary to write something upon catheterism, because, in consequence of the introduction of the pharyngoscope, that operation, and with it aural surgery, have assumed a new phase. Pharyngoscopy first reveals to us all the mistakes hitherto made, and still daily made in catheterising, and of which, to a certain extent, the operator could have no suspicion. Even our anatomical knowledge of that region of the body is enlarged, as we can now every moment by inspection study the parts in the living state, whereas we cannot every moment have a dead body to examine. The previous want of anatomical knowledge is evidenced in the description of catheterism. Thus, for example, the beginning of the description of this operation by Kramer is incorrect, although undoubtedly Kramer contributed largely to the improvement of the operation. He says[a]: "If the catheter is introduced into the nose so far that its point touches the posterior wall of the pharynx (whereby the outer visible ring, consequently also the concavity of the beak, is still directed downwards) we raise the posterior end of the catheter, the beak sinks and glides, while we carefully draw the catheter to ourselves, over the posterior roundish projection of the mouth of the Eustachian tube, etc." Now this is incorrect: if I guide the catheter, with the beak directed downwards, straight through the nose to the posterior wall of the pharynx, and then draw it back in the same direction, I cannot pass the projection of the opening of the tube, and it is quite indifferent whether I depress or raise the beak of the catheter; if the catheter remains in the same direction, that is, with the beak downwards, it passes freely through the naso-pharyngeal cavity to the posterior wall of the pharynx, and as freely again back to the velum palati. But if the catheter in this course gets into a depression, as perhaps into the opening of the tube, we have to do with a pathological condition. As I write this, I repeat the experiment on myself, and with the pharyngoscope upon a patient: I now feel and see the catheter passing quite freely through the naso-pharyngeal cavity; it is not until the beak of the instrument is turned outwards, that it touches the orifice of the Eustachian tube—and sometimes not even then, if a catheter with a long beak be not employed. This relation we could certainly without the pharyngoscope demonstrate in the dead body, but there are other circumstances respecting which we could not in every case without this instrument obtain information.

[a] Die Erkenntniss und Heilung der Ohrenkrankheiten, Berlin; 2 Auflage. p. 484.

Incidentally to the term "pharyngoscopy," I may observe that I shall enter more fully into this subject in a paper which is about to appear in Virchow's *Archiv;* here I shall confine myself to it so far as it relates to aural surgery, having nothing to do with the inspection of the nose (Rhinoscopy).

As to the catheterism itself, I speak only of the method through the inferior nasal passage—other methods depend in part on incorrect anatomical views, or are quite unsuitable and much more complicated than this. In catheterising through the middle nasal passage, we arrive over the mouth of the tube, as unfortunately more frequently happens in attempting the operation through the inferior passage; but neither does it then succeed, and the catheter must be again taken out, and introducted into the inferior passage. I have not yet had occasion to catheterise through the mouth, and this method would be applicable only to those cases where the nose is rendered impermeable by abnormal formations.

In catheterising through the inferior nasal passage, there is only one fixed rule, namely, to keep with the catheter on the floor of the nasal cavity; all other rules are liable to numerous exceptions. In general the operator passes through the nasal passage with the beak of the catheter directed downwards, and towards the septum. But cases occur where it must be directed upwards both in entering and passing through the nose; an instance of which is at present under my care. In general, if any resistance is met with, the catheter is made to rotate gently between the fingers, and, so to speak, to find the way for itself—only no force should be employed; this is the first immutable condition, just as in catheterism of the urinary bladder (unless one has a special passion for forcible catheterism). In like manner, there are cases where the floor of the nasal cavity passes obliquely outwards and downwards, and is, as it were, hollowed out; in this case the catheter must be kept far from the septum. If in difficult cases we cannot, by twisting and turning the catheter in various directions, pass through the nose, a very slight catheter must be taken, and after having ascertained with it how the obstruction is to be avoided, we must then try a stronger one.

Having passed the catheter through the nose, the rule must be now to turn the beak of the instrument downwards, if it has not already in its transit been held in this direction; this usually easily succeeds, because the operator has sufficient room in the naso-pharyngeal cavity, that is, if the beak be first in the cavity turned to the other nostril, and then turned downwards; generally all this is not necessary, but the catheter is passed immediately, with the beak directed downwards, straight through the nose to the posterior wall of the pharynx. If the latter has in either mode been reached, two ways are open of bringing the catheter into the mouth of the Eustachian tube. Either its beak is turned immediately outwards on the posterior wall of the pharynx, whereby the instrument is brought into Rosenmüller's cavity, therefore behind the projection of the tube,

and is now drawn gently, feeling our way, straight forwards over the prominence of the orifice; and so soon as it is felt that it has glided over the latter, it is gently pressed into the mouth of the tube ; or the beak of the catheter is drawn, directed downwards, from the posterior wall of the pharynx directly forwards back to the velum palati (in so doing it is well to press the beak with somewhat greater force still more downwards, in order to be sure of hitting on the velum, and not by more gentle manipulation to run the risk of returning into the nose) ; having arrived there, the beak is turned outwards and somewhat upwards, and pushed *a little* forwards, whereby it passes into the mouth of the Eustachian tube. The latter operation is often still further facilitated by causing the patient to make the movement of swallowing in the moment when the quarter-turn is made, and the catheter is thus usually involuntarily thrown into the mouth of the tube.

What I have hitherto said respecting catheterism is calculated to be of use only to those who are little practised in the operation ; for the aurist in full practice, these are matters of daily experience. But I shall now state some circumstances first discovered by the pharyngoscope, and which are of importance also to the aurist. Thus, if we inquire what proof we have that the catheter is actually in the tube, the one aurist will say, "I feel the catheter gliding over the prominence of the tube ;" the other will answer, "I hear the air, when I blow into the catheter, penetrating through the tube into the cavity of the tympanum." It would be all right, if I feel that and hear this ; but how if I neither feel that nor hear this ? then I have no certain guide but the pharyngoscope, and these cases are not so rare. For example, if we have to do with a case of obstruction of the tube, we cannot hear the air penetrate, and if the projection of the tube be at the same time not perceptible, in consequence of its being too small or lying too much externally, this ground of support also fails. But now there occurs, even frequently, a still more remarkable case, namely, on blowing through the catheter, we hear the air very distinctly penetrating through the tube into the cavity of the tympanum, and still the catheter is not in the tube. In such instances we see, through the pharyngoscope, the beak of the catheter not in the mouth of the tube ; but at a greater or less distance from it, in a direct line inwards, the mouth of the catheter looks, as it were, from afar into the orifice of the tube. If I now blow strongly into the catheter, the current of air passes of course directly out into the mouth of the tube, through this into the cavity of the tympanum ; and on auscultation, I shall hear the air as well as if the catheter were actually in the tube. I may thus attain even great therapeutic results by removing mucus, &c. and so making the tube permeable, I may be still further confirmed in my opinion that the catheter is really in the tube. But the matter is quite different, if in such a case I attempt to introduce vapours or a catgut into the tympanum. The vapours then extend around the mouth of the tube without

reaching the cavity of the tympanum, or at most they arrive there in very small quantity, because they cannot be constantly driven in with such force as a powerful lung exerts in driving the air in jerks through the catheter. Matters are still more unfavourable to the introduction of a catgut: if the catheter be not well fixed in the tube, the catgut in general bends when it comes out of the mouth of the catheter, and passes down into the pharynx—I shall not venture to say where a probe or pointed instrument introduced through the catheter would reach to. But in those cases where neither the prominence of the mouth of the tube is felt, nor the air is heard to press through the tube, no particular mischief will be done if merely air or a drop of medicine be blown in—they will simply not penetrate the tube. But if I suppose that the catheter is actually in the tube, because I have perhaps made the regular turns with it, and if I wish forcibly to remove the supposed obstruction of the tube, I might cause great mischief, nay, even the death of the patient. It is well known that the dreadful misfortune happened to a practitioner in London, that not one, but two patients fell dead, in consequence of the incautious use of the compression pump, so that he was of course brought into court about it[a]. But the pharyngoscope reveals still other positions of the catheter; we may more frequently observe that its mouth is placed at one side of the orifice of the tube, that is, it will be either partly within the latter, or may be so placed upon a margin of the prominence as to look partly, perhaps half, into the orifice; in these cases, too, on strong insufflation, the air is heard to pass through the tube, while for other operations the above described obstructions exist.

Dr. von Troeltsch, in his valuable work on the anatomy of the ear[b] has shown, that in children the pharyngeal mouth of the tube projects less into the pharynx; and that the slender lips of the simply split-like opening usually lie so near one another, that in the dead body it is often difficult to discover them in the swollen mucous membrane of the throat. This is a very important circumstance; for I have repeatedly in patients of from 12 to 16 years of age found the parts still in the condition they present in infancy (and probably the same state sometimes occurs also at a later period of life), that is, an arrest of development, where the mouth of the tube still presented that lip-like split. In such cases it is a chance if the catheter will ever be brought into the tube, for the soft lip-like fissure cannot be felt. In this instance it is not enough to inspect the parts with the pharyngoscope, but the catheter must be introduced with the assistance of the latter, that is, it must be introduced during examination with the pharyngoscope. In this I am already so practised, that with one hand I can manipulate my spatula-speculum, while with the other I introduce the catheter. In another paper I shall shortly

[a] "Lancet," 1839, pp. 558 and 690; Deafness practically illustrated, 1847, p. 69.
[b] Würzburg, 1861, § 35.

describe my mode of proceeding, and also communicate some cases where this arrest of development of the tubular opening occurred, and which were successfully operated on. Meantime I shall here mention only that raising the uvula in pharyngoscopy is a point I have long since got over, that is, I no longer trouble myself about raising the uvula in any way; but with my little spatula-specula, as prepared according to my directions by Hauck, of Vienna, I almost daily inspect the tube, without at all displacing the uvula. The new venturesome instruments recently brought out for raising the uvula are not only unpractical, but superfluous. It is not the uvula, but the contraction of the soft palate, which renders pharyngoscopy or rhinoscopy difficult; therefore it is of no use to raise the uvula, all above remains as dark as before; and, on the other hand, if the contraction of the palate has been overcome, if the pharyngo-nasal cavity be free, it is again not necessary to raise the uvula, the speculum can be very well used without that. There are very rare cases in which, even when the soft palate is relaxed, it is necessary to raise the uvula, in order to see very freely into the cavity. This is the case where the uvula is very broad and long, so that we cannot even see through the two arches of the palate, or if we should wish to look very deeply into the posterior nares. There are noses where, if the clear sunlight be allowed to fall into them, a very thick catheter having been at the same time introduced, we can see directly through them to the posterior nasal wall, and follow with the eye the movements of the catheter in the naso-pharyngeal cavity. In such instances, therefore, no speculum nor instrument for raising the uvula is necessary to enable us to inspect the nose.

There is still another mode of catheterising, in which the pharyngoscope is of essential use, that, namely, where from one nostril we pass the instrument into the tube of the opposite side, if the corresponding nasal cavity is in any way malformed. In such a case we make use of a catheter with a longer beak. Dr. Erhard, of Berlin[a] doubts the practicability of this operation, and Kramer[b] describes it imperfectly. He says, when the posterior wall of the pharynx has been touched by the point of the catheter, turning the latter on its axis towards the affected ear will, on account of the longer beak, in general succeed only with great difficulty, and best at the moment when the patient draws in his breath, or makes the motion of swallowing. Now, this is, properly speaking, no description at all; for it would be a mere accident, if in such manipulation the catheter entered the tube. I have already, in March, 1860, in the hospital here, and on the second of July in the Association of Medical Science of Berlin, exhibited this operation on myself; the gentlemen who were present at these demonstrations saw very plainly, in the pharyngoscope, the catheter pass from the one nostril into the opposite tube. The ope-

[a] Rationelle Otiatrik, § 107. [b] L. c., p. 485.

ration must be so performed, that the beak of the catheter may pass directly into Rosenmüller's cavity of the opposite side, that is, in the diagonal of the naso-pharyngeal cavity; then, in drawing back the catheter, it must be guided gently over the posterior projection of the tube, and so into the latter, as in ordinary catheterism.

I believe that I have in this paper shown what the defects of the art of catheterism have hitherto been, and that the pharyngoscope can no longer be dispensed with in aural surgery. Pharyngoscopy and rhinoscopy are certainly more difficult than laryngoscopy; they will, however, undoubtedly be more cultivated, and the instruments will be improved. Semeleder's illuminating spectacles are an excellent instrument for all investigations of this kind, particularly for near-sighted people, who can have glasses adapted to them inserted in the frame; these spectacles do not incommode the operator in speaking, as the specula with a mouth-stalk do; which is not unimportant, as it will often be necessary during the operation to give directions to the patient how to hold himself. I regret not having sooner possessed them.

In conclusion, I may mention an anatomical peculiarity of the nose, which I met with in the greater number of skulls in the museum here. The nasal septum is mostly bent to the left side, and the left nostril is consequently narrowed; this observation first explained to me why in most men catheterism is more difficult on the left side than on the right, and why we can scarcely ever introduce so thick a catheter on the left side, as on the right.—*Medizinische Jahrbücher, Zeitschrift der k. k. Gesellschaft der Aerzte in Wien.* 1861. Heft 2, p. 93.

Studies of Oxaluria. By DR. MORITZ SMOLER, of Prague.

THE author recapitulates the leading points of a long and important paper upon oxaluria, in the following propositions:—

1. The occurrence of oxalate of lime in the urine, and in urinary calculi, was first noted by Brugnatelli; Scudamore demonstated its existence chemically, and at a much later period Golding Bird described the mode of recognizing it by its microscopic characters.

2. The theory propounded by Brande, in 1808, that certain disturbances in the system are connected with the presence of oxalate of lime in the urine, was subsequently adopted by Golding Bird and Prout; and on the basis of Brande's symptomatology, these two authors founded the nosological description of oxaluria.

3. The occurrence of oxalate of lime in the urine was at first considered to be very rare; it was not until Golding Bird pointed out an easy method of recognizing its presence, that observers were convinced of the frequency of its existence.

4. Oxalate of lime is very widely diffused in nature.

5. Hitherto only oxalate of lime has been demonstrated in the

human body; the proof of the presence of oxalic acid in the blood (Garrod), and of oxalate of ammonia in the urine (Ratier, Devergie, Béclard), has not been adduced with sufficient certainty to place the question beyond dispute.

6. The most frequent form under which the oxalate of lime is met with in the urine, is the quadratic octohedron. But, in addition to this, the following forms have also been observed,—the so-called dumb-bells (Golding Bird) or hour-glass crystal, the kidney shaped (Begbie), or the blood-globule form (Bence Jones); lastly, the very rare form, described by Beneke, of quadratic prisms, with pyramidal terminal surfaces. The first and fourth, as well as the second and third, naturally fall into one group or category.

7. Oxalate of lime is most easily recognized by its microscopic characters; its chemical demonstration is much more difficult, requires more time, and a greater number of details, and is scarcely as certain, unless rather complicated methods be employed.

8. The presence of oxalate of lime is always considered to be a morbid indication. Bence Jones was about the first to lay no particular stress on its occurrence, and to attribute no special symptoms to it; after him, Owen Rees adopted the same view; while, on the other hand, Rose distinctly proved that after the use of articles rich in oxalic acid, a temporary deposit of oxalate of lime may take place in the urine. Magendie most clearly pointed out the injurious tendency of the long-continued use of such food.

9. After it was proved that a sediment of oxalate of lime may occur in the urine, irrespectively of more profound disturbances of the system, the independence of oxaluria as a peculiar form of disease was also assailed. On this subject the labours of Bence Jones, Owen Rees, Walshe, and Maclagan, were particularly decisive. In addition, Begbie, Gallois, and Rose, and especially Beneke, are to be mentioned.

10. Oxaluria cannot, therefore, lay claim to the dignity of an independent disease, of a *morbus sui generis*; it has just as little right to an independent existence as the nervosismus of Bouchut, to which it presents much analogy.

11. But if the admission of an independent oxaluria in the sense adopted by Prout, Golding Bird, Willis, Brett, Frick, Gray, Begbie, Maclagan, or Küchenmeister, appears untenable, it cannot be denied that there are certain diseases in which oxalate of lime is met with either frequently (Walshe, Balman, Maclagan, Gallois, Beneke), or constantly (Beneke, Gallois, Lehmann); as also, on the other hand, there are certain diseases where oxalate of lime is wanting (Newmann, Beneke). It may, therefore, in some cases, be employed as an aid to diagnosis, and herein especially lies the importance of the appreciation of oxalate of lime in the urine. It is interesting that the practical Americans were the first to vindicate this its value; next to the short notices given by them, Beneke possesses in this respect the greatest merit.

12. In some cases the presence or absence of oxalate of lime acquires a prognostic importance.

13. The frequency of the occurrence of a sediment of oxalate of lime in the urine is very differently stated. Walshe found it 28·5 per cent., Gallois 36 per cent. Among 909 patients examined by Bacon, the oxalate was found in 380, or 41·47 per cent. Lastly, of 400 patients examined by myself, I met with such a sediment in 229, or 57·25 per cent.

14. These differences are only apparent; the per centage offers greater varieties, in proportion as cases are taken into account in which oxalate of lime never or constantly occurs in the urine.

15. These per centages are, for this reason, in general without any special value. They would acquire such if per centage calculations were made for particular diseases.

16. The high per centage exhibited by my investigation, in comparison with those of other writers upon this subject, is explicable by the fact that my calculation includes 120 individuals affected with mental disease; and further, because very many diseases of the respiratory and digestive organs are brought into the account, affections in which oxalate of lime seldom fails. The third cause, lastly, lies in the circumstance that they were mostly chronic cases in which the urine was tested for oxalate of lime. But in chronic diseases sediments of oxalate of lime occur very frequently, and of this Maclagan was aware, when he laid down the proposition—"In chronic cases, the total absence of oxalate of lime is rather the exception than the rule."

17. The diseases in which oxalate of lime occurs frequently, or constantly, in the urine, resolve themselves naturally into two great groups:—those, namely, with disturbed respiration, and those with disturbed digestion.

18. A third group might comprise those conditions which are designated as anæmic, chlorotic, as convalescence from severe illnesses, as the results of frequent pregnancies, protracted lactation, spermatorrhœa, excess in venery, &c. But all these conditions are referrible, on the one hand, to the blood altered in its normal constituents, and therefore not duly maintaining the function of respiration; on the other, to the muscular weakness dependent on this very qualitatively, or quantitatively, altered blood, and thus to a depressed process of respiration; they therefore represent, on the whole, only a lesion of respiration, and accordingly fall into the first group. To this same category disease depending on malaria is also to be referred.

19. Just as naturally do diseases of the brain and nerves belong to the first group; for they lead to oxaluria only when they induce circumstances under which the respiration is checked or depressed.

20. But to neither of these two groups do mental diseases, as such, necessarily belong; each special case of the kind requires a separate consideration; some cases fall naturally into the first,

some into the second group; still, particular cases will remain, which, like many others, incapable of being more particularly referred to definite diseases (as each case must be specially considered), will not naturally fall into either of these two groups. For these the establishment of a third group, representing however only a union or fusion of the first two, would seem justifiable. This might be called a mixed or complex group.

21. All diseases in which sediments of oxalate of lime occur in the urine are, therefore, referrible to one of these three categories:—1. Lesions of respiration; 2. Lesions of digestion; 3. Impairment of both these processes.

22. The assumption of a special alienation, or perversion, of the nervous system (Golding Bird), under whose influence an excretion of oxalate of lime is said to occur, therefore appears not absolutely necessary to explain the condition in question (compare 19).

23. It cannot, however, be denied, that under particular circumstances great depression of spirits frequently goes hand in hand with a deposit of oxalate of lime in the urine. In some cases of this nature, the connecting link can scarcely be overlooked, and it is easily found in one of the groups mentioned in 21; but, in other instances, this connecting link is wholly latent. Were the psychical depression the first, which however is not proved, and the occurrence of a deposit of oxalate of lime the second link, those cases might easily be taken into the first group, as it is known that profound mental affections, especially of a negative nature, such as melancholy passions, supervene upon a lesion or depression of the respiratory process. But this is certainly not always the case; indeed, frequently it appears more reasonable to assume that the oxalate of lime occurred first, and that the depression of spirits came on only secondarily; the above explanation can, therefore, not be universally applicable.

24. The theories of oxaluria heretofore current explain satisfactorily the occurrence of oxalate of lime in cases belonging to the first and third group, but leave us almost wholly at a loss with respect to those of the second; or they are, as for example that of Prout, or Beneke's modified theory, not proved; on this subject I have, however, in the foregoing paper, spoken more in detail in treating of diseases of the digestive organs.

25. But, in addition to the above division into three groups (21), another suggests itself to us, which is of great practical importance, although for the present it cannot lay claim to any scientific precision.

26. According to this second classification, we might divide diseases into *a*, those in which oxalate of lime is almost always present in the urine; *b*, those in which it is never found there; and *c*, those in which it occurs only transiently or under particular circumstances in that excretion.

27. For example, to *a* are to be referred—Diseases of the lungs

and stomach, violent attacks of apoplexy, chlorosis, intermittent fever, melancholy, mania, diabetes (?); lastly, convalescence from severe diseases, and pregnancy; to *b*, typhus in its first stages, acute rheumatism, tuberculosis when stationary, certain stages in the course of the same, intestinal catarrh, dysentery, pharyngitis, many cutaneous diseases, according to Beneke incipient carcinoma (?); to *c*, puerperal conditions, morbus Brightii, diseases of the heart, affections of the liver, epilepsy, various nervous diseases occurring in paroxysms, paralysis with imbecility, perhaps diabetes; lastly, the use of food abounding in oxalic acid, of sparkling wines, of strong beer, as well as the medical ingestion of oxalic acid or its compounds. In the last four cases the appearance of oxalate of lime in the urine is only transient, and is of no pathological value.

28. Diagnostically, the occurrence of a sediment of oxalate of lime might be applied—*a*, in the differential diagnosis between typhus and intermittent fever; *b*, between typhus and acute miliary tuberculosis; *c*, to the establishment of overlooked nocturnal epileptic attacks—of great importance in forensic medicine; *d*, in deciding whether rigors are to be referred to an irregular intermittent fever, or whether they depend upon the existence of tuberculosis (?); if the presence of oxalate of lime in the first case, and its absence in the second, should be confirmed, this might, under certain circumstances, be of importance; *e*, to the recognition of incipient tuberculosis; *f*, in establishing the existence of pregnancy.

29. The prognostic signification of oxalate of lime is greater. It is important—*a*, in pneumonia, in reference to its duration, partly to the violence of the affection, and the danger thence resulting to the life of the patient; *b*, in cases of melancholy, a decrease or disappearance of oxalate of lime in the urine is usually a sign of approaching recovery; *c*, in mania, the disappearance of oxalate of lime from the urine generally indicates the near approach of a more tranquil stage. It would be important to ascertain whether the appearance of oxalate of lime in the urine does not precede the occurrence of the maniacal stage; *d*, in apoplexy, the supervention of oxalate of lime may sometimes lead us to suspect incipient pneumonia; *e*, in pleuritic effusions, the constant presence of oxalate of lime will, under certain circumstances, cause the development of tuberculosis to be apprehended; *f*, in cancer of the stomach, a striking increase of the oxalate of lime sediment is characteristic of incipient ulceration; *g*, in certain conditions characterized by emaciation, loss of strength, irritability of temper, peripheric pains, the supervention of oxalate of lime in the urine, if it cannot be referred to coexistent anæmia, gives reason to fear the development of tuberculosis; *h*, in cases of malingering, the absence of oxalate of lime might often confirm our suspicions (for example, where hemicrania, gastralgia, pains in the joints, &c., are alleged to exist).

30. These few propositions might be much extended; they are, however, sufficient for the present to place the importance of oxalate

of lime in the urine in a clear light, and to encourage us to further investigations.

31. The treatment of this condition is not specific, but depends upon the causal general affection; in particular cases, however, some of the approved empirical remedies might be tried.

32. I may conclude with a table of the cases submitted to examination. On the whole, 400 patients (209 males, and 191 females) came under observation; in 229 of these (121 males, and 108 females), the urine constantly or temporarily contained oxalate of lime:—

Diagnosis.				Oxalate of Lime in the Urine.		
	M.	F.	Total.	M.	F.	Total.
I. Diseases of the Brain and Nerves,	13	17	30	8	13	21
II. Diseases of the Lungs and Heart,	49	36	85	40	27	67
III. Diseases of the Digestive Organs,	29	25	54	12	14	26
IV. Diseases of the Kidneys and Sexual Organs,	10	6	16	7	4	11
V. Diseases of the Bones and Joints,	4	2	6	1	2	3
VI. Diseases of the Skin,	6	2	8	3	—	3
VII. General Affections (Chlorosis, Typhus, Pregnancy, &c.)	33	48	81	17	24	41
VIII. Mental Diseases,	65	55	120	33	24	57
Total,	209	191	400	121	108	229

—*Vierteljahrschrift für die Praktische Heilkunde.* Band 70. 1861. page 64.

On the Dangers presented by the Manufacture, Dressing, and Use of Artificial Leaves and Flowers, as well as of Fabrics coloured by means of Arsenical and Cupreous Substances. By M. V. VAN DEN BROECK, Corresponding Member of the Royal Academy of Medicine of Belgium.

THE intention of the following paper is to indicate, in an exclusively practical point of view, the more or less serious inconveniences, and even danger, connected with the employment of objects which are, in the present day, in almost general use.

No one is ignorant of the part which green plays in the dress of women of the world; this colour is the basis, to a certain extent indispensable, of all the decorations into which artificial flowers enter, and there is not a soirée, nor a reunion at all beyond the most intimate circles, where the most varied specimens of an inexhaustible

fancy horticulture are not exhibited. This is familiar to all. But what all the world does not know is, that among the green matters used in the colouring of leaves and flowers there are very few which preserve by artificial light their tint, and especially their brilliancy. All, so to speak, undergo, under the rays of wax-candles or lamps, alterations which have a most deplorable effect; and nothing is more common than to see the gay and vernal green of the morning acquire, when exposed to these *nocturnal suns*, the funereal tint of the cypress.

But among the colours which evade the laws of these chromatic metamorphoses, there is one especially which emerges victoriously from all trials, that is, the colour of which Scheele's and Schweinfurth's greens form the basis. This colour, of a tint ordinarily annoying by its very vividness, preserves in the evening its freshness and lustre; consequently it is now lavished without measure, and, must we say it? without the least regard for the many inconveniences which may result from its employment.

Chemists know the composition of Scheele's and Schweinfurth's greens. Nevertheless, I shall state it here, in order that physicians may be able to account for the bad effects I allude to.

Composition of Scheele's green $(CuO)^2$, $As\,O^3$.

Oxide of copper . . .	44·52	100·00
Arsenious Acid . . .	55·48	

Composition of Schweinfurth's green:
$(CuO, C^4 H^3 O^3), (CuO)^2, As\,O^3$.

Oxide of Copper . . .	44·27	100·00.
Acetic Acid , . . .	18·94	
Arsenious Acid . . .	36·79	

It will be seen that the constitution of these two matters is far from inoffensive; and that, both in copper and arsenic, these substances include relatively considerable proportions of hurtful and poisonous elements.

Well, these are the matters profusely employed in the present day, to colour the artificial leaves and flowers with which the women of fashion decorate themselves from head to foot; and it is to this custom, at present so widely spread, that I wish for a moment to draw the attention of the Academy.

It is now some time since a person of my acquaintance, a total stranger moreover to any medical or even hygienic prejudice, related to me the particulars of a visit which she made to the workshops of a manufactory of flowers in Paris. She had watched, she told me, with curiosity, although without being able to understand it sufficiently, the rapid and delicate labour of the numerous workwomen attached to the establishment, and had been painfully impressed by the sad and unhealthy look of many of them. These poor girls were, for the most part, thin and wretched; a livid and pale complexion, dull looks, an appearance of suffering, a frequent cough, all seemed

to concur to impress on the entire system a fatal stamp of exhaustion and pain. It was especially, it appears, in the workshops where the metallic and arsenical flora of which I have just spoken expanded, that the unfavourable symptoms I have indicated were observed—a terrible coincidence, which, for the poor workwoman, thus rendered suffering inseparable from her daily bread.

This sad thought reminded me of some of my former labours. I recollected that, about fifteen years ago, I addressed to the corporate authorities of Tournay and Brussels, reports concerning the public and unlicensed sale of commercial goods, so to speak, impregnated with poison. In the first instance I alluded to green wax-candles including arsenite of copper; and in the second, to a paper steeped in arsenite of potash, and which, under the pretext of *mort aux mouches*, might admirably serve at once as weapon and excuse to criminals.

The corporate authorities of Tournay and Brussels understood the danger ; they thanked me for my disinterested observations, and, still better, they prohibited the exposure and sale of the dangerous substances I had pointed out.

Well, it is a nearly similar result which I should wish to attain to-day. I should desire that the administration, which pushes its zeal, laudable zeal assuredly, so far as to stamp the smallest measure, and to issue pains and penalties against those who weigh in pounds or pay in florins, should trouble itself a little about the women and children who are poisoned in the manufacture of artificial flowers. Much attention has been philanthropically given to labourers in mines and manufactories ; the hours of work have been fixed ; the employment of such and such machines for condensation and airing has been exacted ; more or less efficacious salutary regulations have been imposed. It ought to be borne in mind, that to inspire oxide of copper and arsenious acid, is at least as destructive as to breathe an atmosphere which is imperfectly renewed.

Further, there is a circumstance which will perhaps assist the idea I desire to promote, namely, that it is not merely the poor workwomen who have to suffer from the poisonous emanations of arsenical flowers. Those who work them up, merchants and milliners,—those, above all, who wear them,—often experience, without being able to account for what they feel, the pernicious effects of the poison which surrounds them. The head of one of the most important houses of business of this kind assured me, lately, that every time that he presides over the arrangement of a trimming into which a luxuriant foliage enters, he experiences a more or less violent headache, vertigo, nausea, and an obstinate dry cough.

The workwomen whom he employs, being more exposed than himself, present these disagreeable symptoms in a still more marked degree. Moreover, my informant assured me that it is always with extreme reluctance, and by express command, that he undertakes such a task.

After such an avowal, it is not difficult to imagine what passes in the midst of those worldly vortices where at the same time passions

and flowers are agitated and shed. Shaken, crushed, and bruised, the poisonous foliage delivers to a burning atmosphere its brilliant and dangerous dust; the latter spreads everywhere, and on every thing; clothes, hair, the moist skin, the air we breathe, nothing escapes its assaults, which are certainly not unconnected with the frequent illnesses which follow gay and extensive reunions. Sometimes even the effects of the arsenite of copper are immediately perceptible; and more than one woman is indebted to it for redness of the skin, and sufficiently serious cutaneous irritations. A case of this nature occurred to my knowledge, during the course of the past winter; and my respected colleague, Dr. Warlomont, has just communicated to me two facts which support my assertions:—two ladies were attacked with intense erysipelatous eruptions, in consequence of wearing head-dresses containing arsenical flowers; on two occasions the same eruption was reproduced. It appears to me to be useful to demonstrate, in some measure, the connexion of these well-established circumstances with the danger I allude to.

I procured a branch of the metallic verdure in question, and detached one of the smallest twigs. The latter consisted of a natural herbaceous panicle, which, after having been dried, undoubtedly has been dipped in an adhesive liquid, and pasted over with Schweinfurth's green. The effect of this sizing is charming to the eye; and it will easily be understood what favour an auxiliary must enjoy, which so well sets off the freshness of the female toilet.

Unfortunately, arsenical and cupreous green holds very badly, and the slightest crushing detaches it in large quantity.

There would have been no use in a minute analysis; for the poisonous coating must, in general, vary very much. However, I was curious to know the approximate proportions in which the poisonous substance and the innocent matter existed. The twig which I detached, having been deprived of a very slight iron-wire which served as a support, was dried at 212° F., and weighed; its weight was 0·171 gramme. Fearing to destroy the organic tissue if I employed an acid, even though dilute, I treated the colouring matter with water of ammonia.

The fluid immediately assumed a magnificent blue colour, and furnished, directly and indirectly, all the reactions characteristic of arsenical and cupreous compounds: precipitation of metallic copper on iron; purple colouration by ferrocyanide of potassium; alliaceous odour on combustion; lustrous spots by Marsh's apparatus: no phenomenon was absent.

When the little twig yielded nothing more to water of ammonia, it was washed, pressed between folds of blotting paper, and dried; it then weighed 0·100 gramme only; it had therefore lost 0·071 gramme, that is, more than 41 per cent. of its weight.

I am well aware that from this quantity something should be deducted for the adhesive matter used to attach the cupreous salt, but a few trials demonstrated how insignificant the deduction on

this head should be. Moreover, I repeat, minute exactitude in such a case would have been perfectly idle.

It appeared useful to inquire in what proportion the arsenico-cupreous foliage might enter into the manufacture of a lady's head-dress.

The master of a fashionable warehouse gave me, on this point, information as positive as possible. He showed me several ornaments in which green tufts alternated with bouquets of various flowers. These tufts were, generally, eight in number, each being composed of twelve little feathers. As the mean weight of each of these feathers was 0·25 gramme, each tuft weighed about three grammes, and the eight tufts together 24 grammes. Now, admitting the proportion indicated above to be constant, that is to say, 41 per cent. by weight of Schweinfurth's green, a lady's head-dress may contain 9·74 grammes of poisonous colouring matter, that is, something like 4·3 grammes of oxide of copper, and 3·6 grammes of arsenious acid; or, in other words, a quantity of arsenic thirty-six times greater than what, when taken by a man, has under many circumstances sufficed to cause death[a].

I shall say no more on the subject of artificial leaves and flowers coloured with arsenic and oxide of copper, and I shall draw attention to a circumstance attended with still greater disadvantages. For some time a light stuff called tarlatane has been met with in the repositories of fancy articles, presenting a splendid green tint, and possessing the rare property of preserving by artificial light all the magnificence of its lustre. It is almost superfluous to say that this stuff, like the flowers of which I have above spoken, is literally impregnated with poison. Specimens which I have procured have furnished in this respect figures almost appalling. Let the reader judge for himself:—

A piece of tarlatane, of $31\frac{1}{2}$ square inches, perfectly dry, weighed 0·272 grammes. This piece was first treated with boiling water, which dissolved almost all the feculent dressing; then, with water of ammonia, which removed the green colouring matter; and, lastly, with pure water. Once more dried to the same degree as before, the tissue, when completely decolourized, weighed only 0·151 gramme. It had, therefore, lost 0·121 gramme, that is to say, more than 44 per cent. of its weight. Now, with the exception of a very small quantity of dressing, this enormous diminution represented the poisonous matter with which the tissue was loaded.

At first view, the importance of such a result is not apparent; but if we reflect upon the present size of female dresses, and calcu-

[a] The kind of poisonous foliage of which I have just spoken is not the only one in use, some varieties contain more than sixty per cent. of poisonous colouring matter. Still other forms are adopted, without reckoning those in wax, which are attended with less danger. I believe it almost superfluous to observe that, to avoid all suspicion of exaggeration, I have throughout made my calculations according to the composition of Schweinfurth's green, which contains less copper and arsenic than Scheele's green, the latter being, nevertheless, much used.

late how much stuff enters into the circumvallation of a modern farthingale, we may form some idea of the immensity of the fact. The piece of tarlatane in question, which can serve only for a gown, gives to the latter, on the whole, a mean measure of nearly 92 square feet of material, raising the quantity of poisonous matter contained in a ball dress to more than 420 grammes (about 13 ounces).

With such a statement before us, all comment is useless. I shall, therefore, make none; but we must conclude. The Government, whose duty it is to watch over the public health, can no longer tolerate this incessant and unwarranted sale of one of the most dangerous poisons. By the laws at present in force, a pharmacien, that is to say, an educated and responsible person, cannot sell poison without a series of formalities, amounting to absolute restriction; and should an ignorant individual be allowed to place in the hands of women and children, even more ignorant than himself, a poisonous substance, the manipulation of which leads to loss of health, and death? He who only *baptizes* the milk which he sells is condemned to fine and imprisonment, and shall a system which robs the artisan of health be allowed to continue? Impossible!

But what do you wish? I shall doubtless be asked. Is it the prohibition of certain works, the closing of certain warehouses? By no means; I am too hostile to everything resembling, even remotely, any bar upon liberty, to advise such measures. What I demand is freedom, legality, and the regulation of a branch of industry which may become fatal to those who carry it on under unfavourable circumstances.—*Bulletin de l'Académie Royale de Médecine de Belgique.* Deuxième Série, tome iv., page 34.

On some of the Rarer forms of Calculi in the Human Subject. By RUD. VIRCHOW.

A.—*A Salivary Calculus.* More than a year ago, I received, through the kindness of Dr. Schulz, of Gross-Umstadt, near Darmstadt, a salivary calculus of unusual size. The donor informed me that he had cut the stone out of the greatly enlarged, elongated, and thickened Whartonian duct of a man aged forty. The patient recollected having, twenty years previously, passed a concretion of the size of a grain of rice from the same part. Until a few days before the operation, he had but little feeling or annoyance from the present formation.

The concretion, which is very heavy, is $1\frac{3}{4}$ inches long, $\frac{5}{8}$ inch broad, and measures $\frac{3}{8}$ inch in the thickest part; it has a very peculiar form. It is of a longish, in general flattened round, almost concavo-convex form, and runs at one end into a blunt and somewhat sloped-off point, at the other into two horns, separated from one another by a deep notch. The surface is on the whole uneven, knobby or warty, only the point is somewhat smoother; the colour

is dirty whitish, with a peculiar greenish tinge in the depressions between the warts. The outer layers are rather brittle, and exfoliate very easily when roughly handled; the inner mass is very dense, and it was extremely difficult to saw through it. The surface of section was tolerably uniform, dense, and white; it was with difficulty that a concentric lamination could be discovered. The principal bulk of the calculus consisted chiefly of phosphate of lime, with which smaller quantities of carbonate were mixed; when the earthy salts were carefully dissolved out, a very abundant organic albuminous basis remained. Microscopic sections exhibited a very regular lamination of mostly thin and quite homogeneous layers; only here and there were some more granular layers, of a greenish-yellow colour. Between these striæ lay, often isolated, often in whole layers, roundish granules of very different sizes, sometimes uniform and shining, sometimes forming concentric laminæ arranged like the scales of an onion. Of these forms, too, an organic skeleton remains, when the calcareous salts are extracted by means of acids. The mode of deposition, therefore, closely resembles what is observed in the excretion of calcareous salts through the kidneys.

B.—Two calculi from the ureters, sent by Dr. Itzigsohn, of Neudamm. The sender remarks that calculi are in his district in general very rare, and that during twenty-five years scarcely half a dozen cases have occurred to him, one of which was in a boy of about twelve years of age. Respecting the present case he writes:—"The accompanying two concretions come from a very healthy woman, aged about forty, but not more than a year married; she had, therefore, been an old maid. The first passed about eight weeks ago, with very intense vesical tenesmus; the second, which is tooth-shaped and smaller, was voided some days ago, with less violent straining. I believe they are undoubtedly from the ureter, which I infer from their cylindrical form and button-shaped appendices, and that they come from the right ureter. The patient had about three months before they were discharged had violent colicky pains in the right renal region, beneath the short rib at the vertebral column; it was stated that these disappeared gradually after the use of homeopathic globules: in plain English, the concretions had by degrees made their way into the bladder, where they may have lain for weeks; for there was at that time always difficulty in passing water, which, as there was a possibility of incipient pregnancy, was referred to the latter.

"Are the little knobs, as they have been described by Amussat, Lisfranc, Fourcroy, Marcet, &c., characteristic of calculi from the ureters? How may these arise? They are easily broken off."

The calculi are oblong and roundish, more pointed at one end, at the other they are blunt and rounded; the surface is rather uneven, and slightly tuberculated; the larger calculus has a girdle-like depression around its middle. Their colour is pure white; their outer layer is slightly transparent; their density is very considerable. The smaller stone was with some difficulty broken through obliquely

in the middle. The uneven fracture exhibits a scaly composition of tolerably thick layers placed over one another, each presenting a radiated arrangement, and a slightly crystalline lustre. Chemical examination showed that they consist almost entirely of phosphate of lime.

Both their shape and their composition render it extremely probable that the calculi were formed in the calyces, perhaps in the pelvis of the kidney, and that they then gradually enlarged as they passed down into the ureters. The little knobs were evidently originally separate formations, which subsequently became attached to the principal mass, just as the superficial depression surrounding the larger concretion indicates that it at first consisted of two separate portions.—Virchow's *Archiv.*, Band xxi. Heft 1. page 116.

On the Operative Treatment of Peritonitis. By Dr. MARTEN, of HÖRDE.

In full consciousness of the insufficiency of my powers, and resting on two cases briefly noted in the course of a laborious practice, I can only aim at inviting the reader to repeat the following investigation of a morbid process, which, so far as I am aware, has not of late years been thoroughly worked out in German dissertations and monographs,—at the same time calling attention to some voids, particularly the analogy of peritonitis with inflammation of other serous membranes, and especially of the pleura, promoting the plan of operative treatment, and submitting *Gastrotomy in abdominal empyema* to the examination of competent judges. Far from believing that I am bringing forward anything new, as all manuals of special pathology and therapeutics mention surgical interference in circumscribed peritoneal abscesses—and Lebert[a] even warns us not thereby unseasonably to disturb the accumulation of effusion tending towards the bowel, the bladder, or the vagina,—I will rather support the application of some old rules of general oncology to inflammation of the peritoneum, and adopt Leubuscher's words[b] :—"When by considerable increase of the effusion very great difficulty of breathing arises, and paralysis of the diaphragm is to be feared, paracentesis may become necessary as a vital indication, though in continued inflammatory irritation it affords much fewer chances than in simple dropsy"[c].

My two cases are :—1. Lina Lessing, aged 10 years, a slender child, born of healthy parents, and having hitherto always enjoyed good health, took ill suddenly on the 12th of May, 1858, in conse-

[a] Handbuch der Practischen Medicin, Band ii., page 410.

[b] Med. Klinik, Band i., page 608.

[c] Compare also Henoch, Klinik der Unterleibskrankheiten, Band iii., p. 328; and Siebert, Diagnostik der Krankheiten des Unterleibes, p. 176.

quence of cold, with symptoms of general peritonitis; violent persistent pain over the whole abdomen, which latter could not bear the slightest touch, was hot and tense; vomiting, constipation, interrupted and rapid respiration, constant fever, with the pulse at 120. Copious local abstractions of blood, in combination with the use of opium, produced only transient relief, until on the 18th, with slight remission of the fever and pain, an effusion took place into the sac of the peritoneum, demonstrable throughout three fingers' breadth above the pubis by distinct fluctuation and a dull sound on percussion, and altering its level on change of position. Under the exhibition of half a grain of calomel every two hours, the effusion had on the 31st with remission of pain ascended above the navel, the latter projecting in the form of a thimble, and the abdomen being so distended that it presented the appearance of a six months' pregnancy in miniature. On the 3rd of June, a small, round, yellowish-grey transparent spot had formed on the point of the navel, into which I passed a Langenbeck's insect-needle to behind the lancet-shaped extremity, and in drawing it out somewhat enlarged the puncture. About a pint of creamy yellow, not fetid pus, was immediately discharged in a full stream, mixed with a few little flakes and thicker coagulated lumps. Under the use of warm cataplasms and Stromeyer's oiled tents, the discharge continued in constantly diminishing quantity until the 8th, when the navel had resumed its normal shape, a little serous fluid trickling from the opening from time to time. The patient having been put upon strengthening diet, the opening had on the 15th closed; the sound on percussion over the whole abdomen was again tympanitic, digestion was normally performed, the bowels were regular, and the child to be considered as well.

2. Augustus Bennekamp, aged five years, the child of healthy parents, enjoyed good health until the 9th of January in the present year. He then took ill, without any assignable external cause, of acute peritonitis, which, after seven days' antiphlogistic treatment, assumed a chronic form; the vomiting ceased, the appetite and the action of the bowels gradually returned, the fever continued in a remittent form. The abdomen remained distended, and was very painful to the touch; and on motion, there was fluctuation, and a dull sound on percussion in the lower part of the abdomen, while the discharge of urine continued undiminished. The free effusion, the level of which varied with the position of the patient, in this case ascended to the navel, though the latter was not at the end of the fourth month prominent; the linea alba, on the contrary, projected in a boat shape. Notwithstanding that his appetite continued good, the patient was worn to a skeleton. Rigors were observed neither in this nor in the preceding case. Both outward and internal remedies having failed, and the parents having refused to allow surgical interference, our efforts were now confined to regulating the functions and supporting the strength. At last, on the 5th of June, spontaneous rupture took place; through a small opening

in the navel some ounces of ordinary pus were first discharged, then a serous fluid mingled with yellowish-grey, non-fecal, crumbling flakes, alternating with pus. Under bad management the opening from time to time became obstructed; the pus became inspissated; and the following state exists to-day :—The chylopoietic functions are nearly normally performed; the strength is so far restored, while the fulness increases, that the little patient can walk some steps. The lower half of the abdomen, particularly in the linea alba, is still distended, painful, and hard. The sound on percussion is there dull; fluctuation is no longer perceptible ; the lower half of the navel is closed ; a serous fluid occasionally trickles forth. The possibility of complete recovery is not to be denied ; nevertheless, the chronic stage includes the further dangers of fresh inflammation, perforation, adhesions, pyemia, and hectic. In my opinion the seasonable opening of the abscess would have have justified us in expecting a more rapid, more certain, and more perfect cure.

The question whether, in this case, we had to deal with a general or circumscribed peritonitis, I pass over, because, as Leubuscher[a] correctly remarks, "where the disease is of general extent, we can suppose only that a proportionally greater part of the peritoneum is attacked." Incomparably more important does it appear in practice to diagnose the quality of the effusion, the empyema abdominis, as the result of an extensive so-called general peritonitis, and for this we have sufficient data[b]. As original forms of the exudation, Bamberger describes[c] the fibro-serous and the hemorrhagic. When, in the first form, the quantity of the fluid portion is so considerable as to give a distinct feeling of fluctuation, it is, in the first place, to be borne in mind that Wintrich[d], in pleuritic effusions, has, even after only five hours, "always" demonstrated a great number of pus-cells ; and, secondly, that tolerably reliable symptoms may be discovered, indicative of the resorption of the serous portion, or of puriform metamorphosis.

2. The hemorrhagic exudation arising from dissolution of the blood or erosion of a blood-vessel, is, when it occurs in considerable quantity, to be distinguished by the preceding and accompanying illness, and the anemia; and in case of purulent metamorphosis, the diagnosis will present no great difficulties. For the change into tuberculous and cancerous exudation, the well-known diagnostic elements obtain; and an ichorous effusion is to be suspected, when puerperal, pyemic, septic processes, or perforations, more or less rapidly induce a fatal result.

The purulent nature of the effusion must, on the contrary, I

[a] *Loc. cit.*, p. 599.

[b] The possibility of confounding this disease with ascites, an ovarian cyst, and abscess of the abdominal wall, or with the distended bladder, seems scarcely to be apprehended.

[c] Virchow, vi.

[d] Virchow, Bd. i. p. 231.

believe, be inferred in practice, when, after the first acute stage of peritonitis has passed,

1, The distinctness of the fluctuation ; and,

2, The quantity of the exudation, remain stationary or increase; consequently,

3, The boundary of the dull sound on percussion ascends in the upright position; and,

4, Exhibits a change of level according to the position of the patient.

Rigors and remission of the spontaneous pains, while sensibility to touch and motion continue, insure the diagnosis and justify the name of empyema abdominis. If in addition there be a circumscribed projection of the abdomen, the empyema necessitatis, and the time and place for opening the abdomen are at the same time determined.

If we follow the fate of the pus in the sac of the peritoneum, four possibilities occur to us :—

1. Resorption. The critical evacuations of large deposits of pus through the rectum and bladder, assumed by the older pathologists as occurring without perforation, do not appear to be confirmed by exact observation. (Abundant sediment of urates in the cooled urine re-dissolved on heating the fluid.) But should we not deny the possibility of such a result in the case of moderate deposits of pus, which might have arisen through the confluence of circumscribed abscesses, we must, on the other hand, remember that it involves the great danger of pyemia and phlebitis.

2. Enucleation, thickening, and cretaceous metamorphosis. In this result, too, the maintenance of life and perfect recovery are by no means certain, as occasion may thereby be given to the development of inflammatory exacerbations, to purulent absorption, as well as to different diseases of the intestinal tube and of the other abdominal viscera.

3. Perforation of various hollow organs, in which perfect recovery most rarely occurs,—death, on the contrary, being by far the most common result, as the contents of the abscess may be discharged into the cavity; and, on the other hand, in the absence of Roser's valvular apparatus, the contents of the latter or the atmospheric air may obtain access to the former, and induce ichorous decomposition.

4. Direct evacuation of the abscess externally, to lead in particular cases to the discussion of which problem of art is the object of these pages. Richter's remark[a] is undoubtedly to be quoted here:—"Thus we have sometimes found an absolutely milky fluid in the cavity of the abdomen, and observed that the disease arose merely from a metastasis of milk. In such a case we have nothing to do but to evacuate this fluid. The disease never appears again, when once it is removed. Operation is the only means required for

[a] Wundarzneikunde, Band v., p. 125.

the total removal of the disease." Accurate examination would perhaps have led to the discovery of creamy pus in the milk. These results may be combined with one another[a].

Statistical investigations as to the frequency of each of these results are the first desiderata; secondly, their pathological anatomy in reference to the formation and reformation of the membranes, as in my first case after recovery the movements of the intestine were in no way impeded, and the serous membranes therefore appeared to be wholly restored[b]. The resorption of the fibro-serous and of the hemorrhagic, as well as of the purulent exudation, would manifest itself by the opposite signs :—

1, By disappearance of the fluctuation ; and,

2, By decrease of the quantity of the effusion : therefore,

3, The boundary of the dull sound on percussion sinks, or becomes partially circumscribed ; and shows,

4, No change of level according to the patient's position.

Palpation of the more solid and tumour-like exudation, and the great improvement in the general health, will in this case confirm the diagnosis. The indications for operative interference in empyema abdominis may be stated analogously to those for thoracocentesis :—

1. The indicatio vitalis laid down by Leubuscher, and quoted above—insufficient respiration and threatening paralysis of the diaphragm, through considerable increase of the exudation—will, in my opinion, provisionally hold good only where the effusion is of puriform quality.

2. The empyema necessitatis requires immediate opening.

3. When, after the expiration of the first acute stage of inflammation and remission of the fever, and notwithstanding the adoption of suitable treatment, resorption is too long about setting in, and the considerable effusion remains stationary or increases, the time we may wait can in general not be even approximately fixed, and depends upon the state in other respects of the patient, the degree of marasmus, of the secondary dropsy, &c.

The contra-indications which present themselves are :—

1, The acute stage of inflammation ;

2, Considerable complications : thus the puerperal process will exclude all manual interference[c]. Whether in many cases of perforation of the intestine where the situation of the lesion can be accurately defined, particularly after typhlitis and inflammation of the vermiform appendix, an incision (colotomia) would not afford a better prospect, and be more rational, than the *opium euthanatodes*, I shall not venture to decide[d].

[a] Compare Rokitansky, Path. Anat., Band vi., p. 172,

[b] Compare Volz, on Perforation of the Vermiform Appendix caused by Alvine Concretions, &c., p. 61.

[c] Compare Moser, Geschlechtskrankheiten des Weibes, p. 587 ; Scanzoni, Geburtshülfe, p. 962.

[d] Compare Piorry's Proposal, Rev. Méd. Chir., October, 1847 ; Stromeyer's Cases

As to the prognosis, I have nothing to say beyond the general well-known principles.

With respect to the choice of the place for operation, in empyema necessitatis this is given; under other circumstances the linea alba, or the part which is most prominent and yields the most distinct feeling of fluctuation, is to be preferred[a]. In Dieffenbach's warning and apprehension[b], I cannot participate: "We should avoid," he says, "puncturing the navel, when the skin is protruded or attenuated. In such instances the wound heals with difficulty or not at all, and may become dangerous to life." But, as in my first case, the choice of situation is sometimes excluded; and even old Gottl. Aug. Richter says[c], in speaking of ascites: "As the little puncture does not immediately close, the continual trickling forth of the water (or pus) prevents the too rapid re-accumulation of the fluid in the abdominal cavity" (the entrance of air and other unfavourable accidents). "With respect to the operation, we may have the less hesitation, as the swollen navel, if not opened, usually gives way spontaneously; for cases have been observed where it has broken of itself, and the water has, without any evil consequence, been discharged; the operation, moreover, has already actually been successfully performed"[d]. "The fear of umbilical hernia (Garangeot) appears to be unfounded (Sharp), especially when a small opening is made." Although the opening is usually situated by no means at the lowest point of the abscess, the complete discharge of the pus is effected, in opposition to the law of gravity, through the contractions of the diaphragm and of the abdominal muscles[e].

Respecting the mode of operating, I am convinced that, as in thoracocentesis according to Marotte, so in empyema abdominis, the preference must be unconditionally given to incision with the knife; or, what is equivalent, to the valvular incision and perforation of the parietal peritoneum with the point of the knife (Rieke), instead of puncture with the trocar, and for the following reason:

It is prudent, in deep abscesses, to divide the layers covering them gradually, and by renewed palpation to make the fluctuation (or pulsation) always more distinct, especially where the walls are fatty or œdematous.

The entrance of air, which when to a slight extent is confessedly not of much consequence, in the operation for empyema abdominis, occurs much less easily than in that for empyema thoracis; and, if we do not operate with the trocar, perhaps never takes place, because the yielding of the soft integuments to the external atmospheric pressure, and the immediate contractions of the diaphragm and abdominal

in Maximen der Kriegsheilkunde, p. 636; and Laparotomy in Fecal Extravasations, Roser, Anat. Chir., p. 224.

[a] Bamberger, *Loc. cit.*, p. 697.

[b] Vidal-Bardeleben, Chirurgie, Band iii., p. 681.

[c] Anfangsgründen der Wundarzneikunst, Band v., p. 134.

[d] Sims, Memoirs of the Medical Society, vol. iii.

[e] Compare Stromeyer, *loc. cit.*, p. 191.

muscles, must render it nearly impossible. In very well-marked cases, the practised and bold operator, like Velpeau, may, in opening the pleural cavity, without further preparation thrust the bistoury through the abdominal wall. Even for injection, the advisability of employing which cannot be considered as a settled point, I believe the use of the trocar to be not absolutely necessary, as it appears to me that by employing a filled syringe the entrance of air can be equally well avoided. Opening the abscess, on the contrary, by means of caustics, drawing plaster, setons, or blisters, appears *à priori* to be as impracticable as the establishment of a counter-opening.

For the after-treatment, the oil-tent and the application of warmth and moisture are sufficient; in the general management, a strengthening regimen should be adopted—*Virchow's Archiv*, Band xx., 5 and 6 Heft.

OBITUARY.

It is our melancholy duty to announce the sudden death, on the night of July 19th last, of Francis Rynd, Surgeon to the Meath Hospital, in the 58th year of his age. Two valuable contributions to surgery appear from his pen in our present Number: they speak more than our words could of the loss the profession has sustained in his sudden removal from among us. It was but a day or two previous to his death that he had revised the proofs of his essay "On Remedying Deformities of the Lips;" when he made an arrangement with us for publishing a series of reports, on matters connected with practical surgery, in our pages: having had extensive practice, both private and public, the latter chiefly in the wards of the Meath Hospital, to which he had been for twenty-six years surgeon, he wished to give his professional brethren the advantage of his long experience. His death was the result of fatty disease of the heart, there never having been any but the slightest symptoms, on one or two occasions, of its existence; and on the day of his death he went through his usual professional avocations. When returning to town from the country, where he had been spending the evening, while in a state of excitement caused by his horse knocking down a woman on the road, he fell forward in his carriage, and in a few moments ceased to breathe. Post-mortem examination revealed commencing disease of both liver and kidneys, in addition to the affection of the heart.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XIII.—*Encysted Tumours about the Orbit.* By JOHN HAMILTON, Surgeon to the Richmond Hospital.

ENCYSTED tumours about the orbit offer some peculiarities in their character and mode of treatment, which distinguish them from the ordinary encysted tumours of the head and face. The encysted or sebaceous tumour of the scalp is circular, flattish on the top, pale, tense, and fluctuating; the fluctuation that of a thick fluid. When opened, the contents are thick and greasy—the consistence of boiled rice—which, moreover, in their white colour, they much resemble. This substance is found in the microscope to be composed of epithelial detritus and fat globules; sometimes there are a few hairs, wanting the hair-bulbs. The cyst is peculiar, being thick and elastic, so as to preserve its orbicular shape after it is removed and the contents expressed; lined with cuticle; the external coat of a pearly white colour, smooth, and readily detached from the subcutaneous cellular tissue in which it is situated. On the other hand, the encysted tumours about the orbit, which I now wish to notice, differ materially from these characteristics. They are usually of an oval shape, with smooth, rounded surface; when of a certain size (and they rarely exceed that of a

walnut), they are of a dusky red colour, not from cutaneous inflammation, but from an organic enlargement of the vessels of the integument covering the tumour, and an increase of their number. Fluctuation is very decided, from the thinness of the contained fluid, and the tenuity of the cyst itself,—the fluid being little thicker than water, and the cyst as thin as paper, consisting of a fibrous outer and a smooth inner coat, like a serous membrane. Their usual position is about the orbit, either on the eyebrow, particularly its outer half, generally transversely to it, and occupying a part of the forehead above it; or extending down on the eyelid, so that when they have attained a certain size, they cause a drooping of the lid. Sometimes the position is much more troublesome both for the patient and the surgeon, viz., extending into the orbit, either along the roof of the orbit or its nasal side; projecting outwards as a tumour, but extending often for half an inch or more into the cavity of the orbit. There is also another feature deserving notice, which is, that they are fixed to the periosteum, and through it to the bone. In the ordinary encysted tumour of the scalp, if large and of long standing, it is well known that the pressure of the tumour causes absorption of the surface of the cranium; so, in these orbital tumours, their growth and pressure cause an absorption of the bone over which they are placed, and to a much greater extent than in the ordinary variety—for this reason, probably, that they appear in many instances to be congenital cysts. Where the mother could be questioned, the general answer has been—that she first observed them when the patient was a child at the breast; in other instances, the patients have said they were told that these swellings came soon after they were born. Their position at this early age must, no doubt, have influenced the growth of bone, while their subsequent increase and consequent pressure insure its absorption.

Between two and three years since, a young man was sent to me from the North of Ireland with one of these encysted tumours, about the size of a walnut, over the right orbital ridge and corresponding portion of the forehead. It had been twice operated on, but after a time returned. After the last operation, the surgeon told him that it rested on the brain. I removed this tumour with the greatest care, with a view to its total ablation, so that there should be no third relapse. I found that the frontal bone under the tumour had been absorbed; and that there was an opening in the bone about the size of a shilling, at the bottom of which was the dura mater, on which the tumour rested; the separation of the tumour here, where it

was rather closely adherent, was an anxious part of the operation. He recovered without a bad symptom. In consequence of this result, and his having no return, another young man came up from the same part of the country, to have a similar tumour removed.

W. Geddis, aged 23, a healthy-looking young man, has a tumour on the right side of the forehead, across the outer-third of the eyebrow and orbital ridge, occupying a small portion of the upper eyelid, and extending some distance on the forehead, about the size of a walnut. It is smooth, rather red on the surface, freely fluctuating as if from thin fluid, not tense; the integuments freely movable over its surface, but the tumour itself fixed to the bone, in which it had caused a depression by absorption both of the orbital ridge and the frontal bone above it.

This tumour, he was told, had appeared when he was only three weeks old, about the size of a bean. It remained stationary till nine months since, and then began to increase gradually to its present size. It was evidently not the ordinary sebaceous tumour which we meet on the head and face, but the encysted tumour peculiar to this situation, with fluid contents—a thin fibrous cyst—but, above all, adherent to the periosteum, and embedded in the bone by its pressure having caused absorption.

My chief object being to remove the tumour entire, or, if that should prove impossible, at least to isolate as much of it as I could, and thus be able to cut away the greater part of the cyst, I made a perpendicular incision through the skin across the tumour to the upper eyelid below it, dividing the orbicularis muscle, and going so low as to prevent matter bagging in the eyelid should the wound suppurate. I crossed this incision by a horizontal one in the long axis of the tumour. By a careful dissection, I succeeded in completing the removal of the whole tumour without opening the cyst. The orbital ridge and the frontal bone were found hollowed out by absorption where the tumour had rested; and it was so firmly adherent to the periosteum, that the greatest care was necessary in its removal. In spite of an attack of erysipelas, he left the hospital three weeks after with the wound just well.

I have mentioned that the contents of the cyst are as thin and transparent as water; but not unfrequently, showing their relation to the ordinary encysted tumour, there are opaque flakes floating through it, which are found to be the sebaceous matter, formed of epithelial scales, with fatty particles. In the following case the presence of this matter was peculiar:—

———, aged 10, a healthy-looking boy, admitted April 10, 1861. He has a tumour on the right eyebrow, about the size of a small hen-egg. It occupies rather more than the outer half of the edge of the orbit, and extends above and below so as to overlap the lower lid, and prevent its being properly opened. The long axis of the tumour is the perpendicular; the integuments appeared natural, except as to colour, being of a dusky reddish-brown, not from inflammation, but from the increased size and number of the cutaneous vessels. It was smooth, elastic, freely fluctuating, and felt as if the coats were thin; but some loose, solid substance could be ascertained to be present within it. The integuments were freely movable over it, but the base was evidently more or less fixed. Its presence had also produced a change in the bone over which it was situated, and to which it appeared to be adherent—the outer half of the edge of the orbit having been absorbed and hollowed out, and the surface of the frontal bone above it having a deep circular depression; but it could not be ascertained to what extent the bone had been absorbed. His mother told me that she had first noticed the tumour when he was an infant. By a crucial incision over the tumour through the integuments and orbicular muscle, I came down to the cyst, and by a tedious and careful dissection I removed the tumour entire; it was firmly adherent to the periosteum, and the separation demanded extreme caution, or the cyst would have infallibly been punctured. The tumour after removal was about the size of a walnut; it consisted of an outer fibrous coat, and an inner serous lining; the contents were clear serum, and the solid substance was found to be a mass of epithelial scales and fat globules, rolled up in a lump together. The wound suppurated, but healed without a bad symptom; the depression in the bone was not deep.

The ordinary treatment for the encysted tumour of the scalp, viz., division, expression of the contents, and tearing out the cyst, will not do here—the cyst being, in fact, irremovable except by dissection; and if any is left behind, the swelling will surely return. About nine years ago, I removed a tumour of this class entirely; the operation was tedious and troublesome, the cyst was so adherent to the periosteum of the ridge of the orbit. But I was careful to effect its complete removal, for the man had been operated on three times previously—twice in London, and once in Dublin, before I saw him. Where the deep position within the orbit forbids the hope of complete removal, I would then recommend as much of the cyst to be separated from the subjacent parts as possible;

and when it is accidentally opened, which it is sure to be at last, to cut away as much as we can of the cyst; the wound should then be dressed from the bottom with lint. A young gentleman was brought to me with a tumour of the upper eyelid, which on examination I found to be one of these encysted tumours; and though it projected very little outwards, I found it went deep in along the roof of the orbit, and was quite fixed After a good deal of the cyst was separated and removed, the wound was stuffed with lint; a very smart suppuration ensued, with a good deal of fever, but there was no return of the tumour. This plan will not always succeed, as the following case exhibits:—

W. H. Conroy, aged 18, in the Survey Department, was operated on by me two years ago for a small encysted tumour on the nasal side of the right orbit, and fixed to the bone. In operating and isolating the tumour from the surrounding parts, it was found to go far back along the bone deep into the orbit. After a considerable portion of it had been isolated, the sac, which was uncommonly thin, was accidentally opened, and a fluid—transparent, and little thicker than water—escaped; as much of the cyst as could be got at was cut away, and the wound dressed from the bottom. After a time it healed up, and remained apparently well till two months since, when it became perceptible again; I therefore operated a second time The tumour was under the former cicatrix, and appeared about the size of a hazel-nut, fixed to the bone. As before, I dissected as much of the tumour from the surrounding parts as possible; after a considerable portion had been laid bare, the thin transparent cyst was opened accidentally, and a clear thin fluid escaped. The cyst was found, as on the former occasion, to extend along the bone about an inch into the orbit. As much as could be was cut away, and the cavity dressed from the bottom with dry lint well stuffed in. It was dressed every second day in the same way, and at each dressing the nitrate of silver was applied freely to the sides of the narrow and deep hole. This gradually contracted, and finally healed, rather more than two months after the operation.

I saw him lately, many months since the operation, and there is not the slightest appearance of any return.

I recollect assisting the late Sir Philip Crampton in operating on one of these tumours in a young lady; it was in the upper eyelid, and fixed to the roof of the orbit. Mr. Carmichael had attempted its removal twice, and Sir Philip had already been foiled an equal number of times,—the tumour having returned to its former dimensions, in spite of the appli-

cation of the nitrate of silver, and the insertion of red precipitate powder. This time Sir Philip put in a small mass of crumb of bread, intimately mixed up with one-third of the oxymuriate of mercury; smart suppuration was the result, and there was no re-appearance of the tumour.

Art. XIV.—*On the True Nature and Absolute Preventibility of Tubercular Consumption.* By Henry M'Cormac, M. D.

[Read before the London Medico-Chirurgical Society, April, 1861.]

The statements I am about to make are momentous indeed, since they involve the question of the extirpation of consumption and scrofula, from the world. These statements are founded on the laws of the organism, laws old as creation, laws coeval with the existence of living kind. We all know the difficulties encountered by the first promulgators of facts, now deemed intelligible enough to be taught in schools for the young. We sympathise with the trials of Kepler, Galileo, Servetus, Harvey, Jenner, in fine, almost every discoverer in his turn. The very same, at least counterparts of such occurrences, take place in our own times, are to be traced in the development of our own minds. Yet man's soul is so constituted, as to take in every truth, when that truth is presented to it with sufficient firmness and insistency. And, certainly, if there be truths that need insisting upon, it is that a ceaselessly renewed atmosphere is essential to the living organism, that the blood's purity stands in indissoluble relation to a pure atmosphere, and that consumption and scrofula are entirely preventible diseases. For indeed they result from like conditions, conditions alike preventible, from neglect of the physical laws of our corporeal being, the inversion of that natural order, which is made provocative, not of strength and vigour, but of weakness and decay.

In my treatise, *On the Nature and Prevention of Consumption and Scrofula, a Letter to the Imperial Academy of Medicine*, and in my Addresses to the Medico-Chirurgical Society of Edinburgh, Surgical Society of Dublin, Physiological section of the British Association, severally, I have stated in the clearest terms that tubercle consists of effete matter, retained unoxidized in the animal system, owing to the habitual respiration of an unrenewed, stagnant atmosphere. This statement I here repeat. Our organic life reposes on a ceaseless movement of composition and decomposition, of integration, disintegration, and oxidation, the materials assimilated yesterday being thrust aside

and replaced by new materials to-day. This alternate movement, of tissue-metamorphosis, the *Stoff-Wechsel* of the Germans, is founded on incessant food and air supplies. When the same air is respired, habitually, oftener than once, the blood is not adequately depurated, the effete matter is not adequately got rid of, but is deposited in the living tissues. This must be so, for the carbon contained in the expired atmosphere is only poured out adequately on the condition that that atmosphere, when inspired, shall be pure. The demand for a renewed atmosphere, to replace that which has become impure, is only less urgent than the demand for food. Zoochemical processes, however alike in essence with those which we conduct with scale and weight, must be apprehended intellectually, else they cannot be apprehended at all.

I do not say that I am the first to assert the advantages of fresh air, for those advantages however poorly insisted on, and yet worse availed of, have been more or less appreciated by all reflecting, observant men. But I am the very first to assert that tubercle is the result of effete tissue, effete carbonaceous along with other effete tissue, not oxidised, accumulating in the blood, and deposited as the structureless, amorphous substance, hitherto known under the absurd and unmeaning designation of tubercle. The irritation which the presence of this *foreign body* induces in the living organism, induces hectic fever, what is known in the vernacular as consumption, or decline, and, when we adopt the Greek designation, phthisis. Were we to respire incessantly a pure atmosphere, the effete tissue would be as incessantly oxidised. There could be no tubercle, no decline.

The word tubercle, indeed, adopted in the infancy of our pathology, bears reference to the rounded forms in which it is so often met with. Tubercle, however, may occur moulded, as in the hollow organs, stratified, infiltrated, liquid, solid, mixed. As to colour, it may be yellow, grey, or white. It does not present a trace of organization, no cells, vessels, nerves, unless when these are accidentally, or, in other words, mechanically, involved. Amorphous it is, and structureless, not the result of a vital process, but of a negation of vitality. It consists, in essentials, of the carbonaceous, or hydro-carbonaceous waste, insufficiently burnt off, by reason of respiring a previously respired, unrenewed atmosphere. For otherwise, no toxic agent, no foul atmosphere or malaria, however else it may assail life, will, as such, conduct to tubercle. Nay, if oxygen but abound, the egesta will be burnt off in the midst of putrefactive and other impurities. Whereas, if oxygen do not abound, the most

exquisite purity, all the spices and perfumes of the world, will not otherwise avert or arrest the ruin of the organization. If the air have not been respired before, there is, there will be, there can be, no tubercle. But if the air habitually respired have been respired before, the blood remains fouled, and tubercle is inevitable.

The intelligent study of nature reveals unity, unity and congruity, in all its parts. Nothing is absent, nothing is left imperfect in the stupendous whole. The skill and prevision of the mighty Artificer are conspicuous in the least, as in the greatest of his works. It would be strange were it otherwise in the organism, so admirably perfect in each and every part, of man and brute. In fact, it is not so. There is a perfect correspondence between waste and supply, adaptation and sequence, in all the acts of the economy. The waste increases *pari passu* with the work. In the peer as in the peasant, the beggar as the millionaire, the savage as the civilized man, alike, there are, there must be, the daily two pounds, a little more, a little less, of solid varied ingesta, two pounds, or somewhat less, of solid daily waste. If now we divide the average, thirty-two ounces daily sustenance, less two ounces for intestinal dejections, into the entire mass of the living frame, we shall perceive how rapidly conversion and interchange ensue. Indeed, some few weeks, or shall we say months, suffice to replace every molecule of the organism. The food is assimilated, converted into living tissue, which is then disintegrated, oxidised, in fine, passed off as dead, effete tissue, through the medium of the various secretory and excretory outlets. The amount of metamorphic waste, both absolute and relative, keeping in view climate, season, fasting, repletion, sleeping, waking, temperature, stature, effort, sex, position, age, varies with the wants and requirements of the economy. The process is a ceaseless one, till, the springs of life wearing out, the worn-out organism itself is got rid of altogether. For life, so to speak, is no other than an incessant assimilation and taking asunder, and death the cessation of both.

An ill-renewed indoor atmosphere, coupled with inactive habits, muscular inertia, particularly of the upper extremities and respiratory apparatus, is the all-potent source of phthisis and scrofula, as an atmosphere incessantly renewed, with muscular, respiratory effort, is the sure and certain preventitive of both. The living organism needs air and action. A stagnant atmosphere, with closed room-spaces, muscular torpor, excessive indoor life, bring inevitably along with it tubercular deposits, and physical perdition and decay. A chamber-life, in-

deed, together with a frequently respired atmosphere of stagnant impurities, is as certainly provocative of tubercle, as certainly as that fire burns or water flows. Cellars, garrets, airless room-spaces, indoor instead of outdoor life, foul air instead of fresh, be the scene else a palace or a hovel, entail inevitable tubercle, or consumption, or scrofula, or both, in some one or other of their protean forms. The ill-aired mine and dreary dwelling, the miserable inmates dragging out a wretched existence, breathing ceaseless impurities, are as thus on a par in respect of the production of phthisis and scrofula. For air, pure air, is life's elixir, and, with food, the co-foundation of our organic being. Nay, the organism, in a sense, is air made flesh, and a changeless chamber-atmosphere, loaded with matters effete and dead, impairs life's processes, clogs the blood, renders it impure. Four per cent. carbonic acid issues with every breath, provided the air inspired be pure. But if the same air be respired again and again, the carbonic acid rises to eight, and even ten per cent. of the respired atmosphere, rendering it utterly unfitted for the renovation and purification of the vital fluid. But air fouled to an extent far less than this, coupled with seclusion and inaction, proves deleterious. And the inevitable final issue of the continued stasis of the metamorphic carbon-waste in the blood, is, I assert, the deposit of the latter as tubercle in the living tissues. Thus, then, tubercle and carbon waste are terms virtually convertible, even as the things signified themselves are convertible.

Atmospheric oxygen, sufficiently respired, depurates the blood. At every heart's beat, each breath we draw, the effete matters, *quoad* the lungs, combine with oxygen, and, being oxidised, are expelled. I had long indeed come to the conclusion that absent ventilation, defective insolation, inadequate effort, induced phthisis. But why they did so, neither I nor any one could point out, until I arrived at the happy inference that the arrest or invasion of the natural order of the metamorphic changes, hindering or suspending, first the oxidation, then the expulsion of effete tissue, was in reality the direct and only origin of tubercle. For tubercle deposits are no other than the effete carbon-tissue, not oxidised, and therefore not expelled. In effect, effete tissue and tubercle are one. Every fact in pathology proves it, every process in our organism but lends fresh force to a conclusion, which, if acted upon, would release our fellows from a hitherto ravening and relentless scourge.

Both skin and lungs need ceaseless ventilation, and that beneath the free heavens, or with immediate access to them. We should suffer our young people, our dependents, to go

much afoot, to brave wind and rain, and storm and cold, else do they incur the dread alternative of delayed or perverted metamorphosis, imperfect oxidation, in fine, the deposit of effete tissue within, instead of without the organism. For the system-waste cannot be retained without the certain risk of blood-contamination and premature decay. Vicarious efforts, at the expense of other animals, riding and driving, however good in their way, will not entirely suffice for the conversion of the metamorphic waste, will not supersede the necessity of direct exertion of our own. Any economy of the time and effort requisite to secure the needful tissue-metamorphosis, the oxidation and elimination of the effete waste, is a pernicious economy, proves the easy stepping-stone to decay and death. When the effete matters are thoroughly burnt off and discharged, there is health, *quoad* consumption in any of its forms, tubercle, in any of its forms, is impossible. But when the effete matters are not burnt off, not discharged, consumption is not only possible, but inevitable.

Like laws, as modified in their operation by circumstances, govern the economy at the equator and the poles. Everywhere there is tissue-metamorphosis, everywhere oxidation, more or less, of the effete animal waste. Now, the lung-discharge, now the liver, now the kidney, or the skin, each in its degree, predominates. Everywhere the effete matters are expelled, or, failing expulsion, we have the certain alternative of disease and death. In one region as another, the pound of meat and pound of bread, or their food-equivalents, are consumed daily, in order to maintain the movements of the organism. It is a tale about people needing less food at the equator, as it is a legend as to their requiring more at the poles. There is no such thing as respiratory food *per se*, or plastic food *per se*. The ordinary food-supplies contain the plastic and respiratory matters, the carbon, hydrogen, nitrogen, and oxygen, along with the iron, phosphorus, magnesia, sulphur, lime, potash, soda, needed by the economy. For it is not food, as food, which is oxidized, but the disintegrated tissue, the metamorphic waste, no longer food, but effete matter only. The excesses of starving savages, in respect of blubber and train-oil, are no more the criterion of normal wants, than are the excesses of our gluttons and drunkards at home the *norma* of civilized life. The needs of the economy, keeping in view the amount of effort and waste, are mainly alike in all climates. The Hindoo consumes at his one meal of rice and ghee as much as any savage. Two pounds rice in the husk, with unlimited palm-oil, pepper, and any stray fare that came in his way, was, I observed, the daily

allowance of the hard-working Krooman on the West-African coast. A fanatic in matters of food, Count Cornaro, once gave out, it was a great misstatement, that twelve ounces, not thirty-two, sufficed for the food of man. Why, in some instances, there are twelve ounces of carbon-waste, alone, in the twenty-four hours—lung detritus.

There is, in truth, in respect of animal wants, a narrow margin, beyond or beneath which we have it not at our power to go. A moderate food-sufficiency, with abundant air-supplies, muscular effort, and strict cleanliness, is best suited for the pleasant discharge of the processes of life. Habitual excess, by embarrassing the economy, and habitual deficiency, as failing in the requisite material supplies, lead, severally, although in different ways, to disease and death. The food-supply is metamorphosed into living tissue. The living tissue, its work discharged, is converted into effete or dead tissue, which, through the intervention of the various emunctories, is forthwith expelled. But if the effete or dead tissue, so far as regards the lung-function, be not oxidized, be not expelled, the blood remains loaded, and the effete tissue, finding no sufficient outlet, is laid down as tubercle throughout the organism, completing thus, intelligibly, the cycle of sufficient healthy, or otherwise of insufficient unhealthy action, within the organism. An adequate supply of mixed food, adequately assimilated, the waste adequately oxidized and expelled, is productive of health and well-being, as the converse is productive of disease and decay.

The hypotheses suborned to explain the occurrence of tubercle on any other supposition than that of the deposit of effete tissue, are chaotic indeed, serve but to illustrate the extravagance of thought and the recklessness of speculation. Thus, tubercles have been ascribed to cold, although cold without foul air cannot induce tubercle. The great inconsequence of referring them to inflammation is shown in the concurrence of tubercles in, perhaps, half a dozen of organs, or more, at one and the same time. The worst food-supplies, if only there be fresh air, will not induce tubercle, as the best food-supplies will not avail to prevent it, should that prince of condiments, fresh air, be wanting. Damp, *per se*, never engendered tubercle. Nay, people shall live, as it were, immersed in moisture, and, so they but respire a pure air, never present a trace of tubercle. As to hereditary influences, so termed, they are simply *nil*. Phthisical persons, even, will not have phthisical children, unless these children be debarred from pure air. Nay, the phthisical themselves will escape all further tubercle-de-

posit so long as they breathe fresh air. There cannot, I hold, be tubercle without the deposit of effete tissue, and this can never be so long as the respired air is pure. The more work, the more waste,—the less work, the less waste. If only the effete carbonaceous tissue be duly oxidized, tubercle-deposit is impossible. But insufficient oxygen, with muscular effort inadequate to promote the desirable interstitial changes, is inevitably provocative of disease. Every act of healthy respiration deprives a portion of air of its oxygen, gets rid of effete waste. There is a ceaseless integration, a disintegration just as ceaseless. But the complement to this, as respects the lungs, is a healthy oxidation. Now, if pure, sweet oxygen be respired habitually, the oxidation will be a healthy oxidation. But if air loaded with carbon-waste, saturated with this and other products of respiration, be habitually respired, the oxidation will not be healthy, and no power on earth shall avert the deposit hitherto known under the absurd and unmeaning designation of tubercle.

Living creatures, man or brute, plunged habitually in an effete, decaying atmosphere, polluted by incessant respiration, become tubercle-stricken, accordingly. The two pounds, or so, of daily metamorphic waste may be poured into the blood, but unless, in so far as it shall be oxidized and expelled, it is deposited, or liable to be deposited as tubercle, so named, in the living tissues. For tubercle, as I must incessantly repeat, is no other than effete tissue not burnt off, and effete tissue not burnt off is very tubercle. We see persons, some absorbed student, pallid clerk or artizan, restricted school-girl, pursuing all day long their stationary or sedentary employment, and sleeping in airless rooms, become the incessant victims of pulmonary tubercle. We see, likewise, our soldiers, young men, picked out for strength and stamina, well fed and well clothed, nay, well exercised in the open air, perish in an alarming ratio by reason of sleeping in barrack-rooms crowded with comrades, and deficient as to uncontaminated oxygen. So, too, French shepherds, breathing by day heaven's purest atmosphere, by night the stagnant contents of closed-up caravans, prove also victims of phthisis. The New-Zealanders, who, in imitation of Europeans, construct close wooden huts, in which, some twenty couched together, they pass the sweltering nights, perish in numbers. The Scilly Islanders, with the air of the great ocean at their doors, exclude it with all imaginable care, and die off tubercle-stricken, accordingly. But, like facts abound everywhere among the perishing multitude, devoured, so to speak, with consumption and scro-

fula, owing to utter neglect and misapprehension of the laws and obligations of organic life.

The Icelanders and Esquimaux, as I have shown elsewhere, are not exempt from phthisis and scrofula, except in so far as they are able to shun a twice-respired and tainted atmosphere. Comfortable, respectable England, Scotland, and Ireland, reposing in ceiled rooms with closed doors and windows, are infested with consumption and scrofula, while the more fortunate dwellers of the Hebrides and north-western Scottish coasts, living and sleeping in unceiled hovels, with a hole in the roof for chimney and window, a fire on the middle of the floor maintaining day and night a ceaseless current of pure fresh air, are absolutely unvisited by both. And why, but because they enjoy day and daily, and ceaselessly, the unspeakable advantage of an incessantly renewed atmosphere, oxidizing the tissue-waste, and expelling the effete matters from the blood? Hence there is nowhere witnessed among them the most ruinous and devastating of all scourges, no hideous scrofula, no wasting decline, no hip-joint disease, no tabes of the mesentery, no scrofulous caries of the spine, no white-swelling of the knee, no swollen parotid, no water in the brain-ventricles. Never was there afforded a more striking confirmation of a theory, than what this immunity of the people of the Hebrides and north-west Scottish coasts affords to mine, an immunity to which, with all our refinement, culture, and intelligence, we have hitherto been unable to attain. If physiology and pathology, if our practical and speculative inquirers will not recognise in their entirety these facts and inferences, why, then, so much the worse for physiology and pathology, so much the worse for these practical and speculative inquirers, but above all, so much the worse for the helpless multitude committed, in respect of measures curative and preventive, to their care.

We cannot with safety remain behind the exigencies of our position and our time. Yet there are those who refuse to hear of tissue-metamorphosis, the most important of all facts within the domain of pathology, who never utter the word, or once advert to it in their pages. Nature indeed speaks of it, but they will not listen to her. Nature insists on it, but they are deaf to her monitory voice. She, in truth, employs every means to get rid of the effete waste, as well as of the tainted atmosphere into which that waste, when oxidized, is poured. For the respired air, if only suffered to do so, instantly rises and is lost in space. Nor is this all, the septum between the nostrils, constructed at divergent angles to this intent, separates the expired air, loaded with impurities, into two currents, pro-

jecting them forwards and laterally from the countenance, never to return. Nevertheless, between walls where space is bounded, and where there is no adequate outlet for the lung-dejections, no sufficient indraught of an untainted atmosphere, Nature's providence is frustrated, her previsions are in vain.

Pathology, human and comparative, rightly understood, confirms the positions I have laid down. If any one object to these views it is open to him to refute them, to point out the possible other source of tubercle, when the carbonaceous waste, failing oxidation, is retained in the organism. The *instantia crucis*, in my behalf, is the easiest in the world. It is only necessary to shut up, as I have shut up, some living, breathing thing, keeping it else clean and dry and well fed, but, like so many of our own species, debarred of light and air. It is only needful, so far as may be, to force upon it the respiration of the same vitiated atmosphere, in order, with the unfailing sequence of cause and effect, to induce tubercle-deposit in the framework of the economy. I challenge the refutation of these views, else solicit their adoption. Indeed, if true, they must be adopted. Effete matter not oxidized, not expelled, haunts now the skin, now the bones, the spine, the mesentery, the secernent and other glands, the larynx, lungs, ear, brain, hip, knee, ankle, wrist, elbows, fingers, heel. When tubercle disintegrates the pulmonary vessels, we have the hemoptysis of the pathologist, the broken blood-vessel of the people. But when tubercle assails the lung-tissue, so essential to vital integrity, we have the phthisis of pathologists, the decline of the vulgar, the scourge of the world. There is, in truth, but one common origin, one common pathology, for tubercle in whatever guise. The waste is not oxidized, the blood is not depurated, hence the initiation of a malady whose ravages are without a parallel. The airless cellar, and confined school, the wretched dormitory, where workhouse children are crammed together, above all, the stuffy, reeking sleeping-chamber of ordinary life, are the choice, especial seats of tubercle-formation. But in the free spaces of heaven, the homes of the desert Arab, the dweller in the Hebrides, in fine, wherever the air comes freshly in, there is no tubercle, no consumption, no scrofula. For phthisis and scrofula are results of tubercle-deposit, come from blood loaded with effete matter, which the poisoned atmosphere, so far as the lungs are concerned, renders it impossible to expel.

It was once supposed that the ravages of consumption affected England, the land of comfort, in especial. It is not, however, entirely so, since they affect every region where the

same air is respired again and again, in short, wherever the pure, fresh atmosphere is excluded from the living organism. It is the close-fitting sleeping-chamber from which, through an unreflecting dread, we exclude the life-giving element, that proves the most potent, as it is the most frequent source of tubercle. The baleful habit of sleeping with closed doors and windows, and, *à fortiori*, with the head covered, common enough among the ignorant poor, destroys more human beings than fire or sword, nay, more than all other sources of preventible disease put together. For how narrow, as contrasted with the lung-requirements, is the largest sleeping-chamber, how restricted the allotted room-space, how rapidly the air perishes—becomes saturated, so to speak, with impurities, poisonous and destructive utterly. Nay, the inferior animals, the cow which expires seventy, and the horse which expires eighty ounces waste-carbon during the night and day, incur, when they share our perverted habits, the same dread natural retribution. The creatures in our zoological gardens, insanely confined in heated, air-tight chambers, died off, tuberculous, but when air was supplied, their successors did well. Negroes and Creoles, when subject to the seclusion of colder regions, perish like the inhabitants of those regions. Phthisis and scrofula infest all Europe, the entire littoral of the Mediterranean. Some one hundred thousand persons, it is presumable, are cut off yearly, tubercle-smitten, within the boundaries of these kingdoms. Half the women examined at the Salpetrière, and one-third of those who perish in the French hospitals, generally, present, it is said, tubercles.[‡] One observer has gone so far as to say, that five out of seven of the entire French population labour under tubercle. Yet, such is the might of pejudice, that a pure, fresh atmosphere, by many is looked upon with dread, instead of being esteemed the solace and safeguard of the world. Multitudes, indeed, live and die in apartments curtailed of light and air. Some, who do not object to air by day, esteem it ruinous by night, exclude it with zealous care. Yet, if they but understand the conversion, the metamorphosis of tissues, the needfulness of lung-oxidation, and of the expulsion of effete waste, the perilous facility with which tubercle is deposited, they would haply run into an opposite extreme, and be as anxious to avail themselves of the unadulterated atmosphere, as they now are to reject it. Unhappily, the multitude sleep in dens, recesses, into which pure air rarely penetrates. Every expedient is resorted to, in order to exclude the precious element from the panting, craving organs so anxious to drink it in. Nature employs expressest means to render respiration

safe and profitable, we, means equally express to render it unsafe and unprofitable. Some twenty inches cube, every three seconds, are the average amount of respired air, which is not only heated on its passage to the lungs, but is there further mixed with a standing reservoir of about two hundred inches cube, by which, even in the coldest regions, all serious chill is effectually averted. Besides which, the oxygen introduced begins instantly to play its part, combining with the effete carbon, and evolving warmth. We cannot respire an impure atmosphere without flying in the face of the Divine economy. With children, in particular, in whom the tissue-metamorphosis is so incessant, and who consume so much oxygen, the respiration of a pure atmosphere is among the most vital necessities of their corporeal being. What swarms of tubercle-infested children and adults do I not incessantly meet with. How often have I removed the covering which besotted nurses and parents, unwitting what they do, throw over the poor infant in his cradle. Yes, the respiration of a stagnant, foul night-atmosphere tends, of very necessity, to infirmity and death, whereas the respiration of a pure, sweet atmosphere, by night and by day, induces health and cheerfulness, a brilliant eye and clear complexion, in fine, the sense as well as the reality of that physical well-being which attends compliance with nature's expressest law.

Consumption and scrofula degrade and ruin the stamina of man. They are our race's bane. They afflict us on earth's sunny surface. They follow us in the dreary mine. They spare nor age, nor rank, nor sex, nor class. The respiration of a previously-respired atmosphere, I allege, is the condition *sine qua non*, without which, or consumption, or scrofula, cannot be. Even the offspring of the consumptive, provided only they respire pure air, cannot incur consumption, while persons the most vigorous, respiring incessantly the same atmosphere, cannot by possibility evade it. An imperfect hematosis, and consequent retention of effete tissue, is the one and only source of tubercle. For if the effete carbonaceous matters be not oxidized, they cannot leave the system, but remain to taint the blood, and ravage the economy. An imperfect delivery of the effete waste entails tubercle. Tubercle itself is no other. Consumption and scrofula are as purely artificial as poisoning by arsenic, and may be set aside, as to their recurrence, when we will. We have but to obey nature's strict requirements, to supply our dwellings with air pure by day, by night not less pure. This is the regal touch, the golden means, which, would we but adopt it, shall accomplish what royal touch never did.

Every casement supplies the means, yields, during the hours of rest, a pure, fresh atmosphere, if we will. For the open door and window neutralize, with perfect certainty, the unholy virus that hurries so many to their doom, supplies, or should supply, a current pure as that which flows by the hill-side or along the grass-lea. I shall never be satisfied with less than a universal adoption of the views which I here propound. Day and daily, and for ever, clamour the voices of the victims of tubercle, vainly imploring the relief which medical science hitherto has denied them, yet which it is in our amplest power to impart when we will. There cannot be health, unless we live in unison with nature's harmonies, those divinest harmonies, the incessant violation of which, alone, induces the scourge which it should be our ambition to expel from the world. Assuredly, the hour that witnesses the adoption of the means on which I have so dilated, the universal adoption of pure, instead of foul air, air buoyant, taintless, as it issues from the Creator's hand, shall also witness, for ever, the disappearance of consumption and scrofula, with all their hateful train.

Art. XV.—*On the Phenomena of Diabetes Mellitus.* By the Rev. Samuel Haughton, F. R. S., Fellow of Trinity College, Dublin.

[Read before the Association of the King and Queen's College of Physicians.]

(*Continued from* vol. xxxi. p. 338.)

In concluding my account of Owen Murphy's case, I should add, that on the 8th of December, 1860, the temperature of his left axilla, uncovered by bedclothes was 98° F.; while that of a healthy boy, in the same room, and under similar circumstances, was 96° F.

The next case to which I shall direct attention is that of Henry M'Nee, which I had an opportunity of studying, while he was under the care of Dr. Law, and of Dr. Osborne, in Sir Patrick Dun's Hospital. He was 30 years of age when he first suffered from the disease, and had been two years under its influence when admitted into hospital. He attributed the first access of the disorder to over-drinking of beer in Staffordshire, during harvest.

The following Table contains the results of my examinations of his urine:—

Table XI.—*Constants of Body and Urine of Henry M'Nee*, 1860.

Date.	Weight.	Urine per day.	Sugar per day.	Urea per day.	Specific gravity.
10 Feb. 1860.	154 lbs.	240 ℥ fl.	8750 grs.	1202 grs.	1035·9
6 Mar. „	147 „	240[a] „	7500 „	993 „	1034·0
20 Mar. „	158 „	240 „	6562 „	941 „	1033·1
9 May, „	151 „	200 „	7291 „	828 „	1035·4
Mean, . . .	**152·5** lbs.	**230** ℥fl.	**7526** grs.	**991** grs.	

He died on the 14th November, 1860; and the specific gravity of the urine, some days before death, was found to be 1015, and it contained some sugar, but the quantity was not ascertained. The *post-mortem* examination, made by Dr. Law, showed hypertrophied vascular kidneys, weighing 12 oz. and 11½ oz. respectively, but free from organic disease; tubercles in the substance of both lungs; and incipient pleurisy in the base of the left lung; the liver weighed 5 lb. 6 oz., and appeared perfectly healthy.

I examined 751·7 grs. of the liver, and found it became, by drying at 212° F. 238·0 grains., or 31·66 p. c. residuum—and 194·1 grs. of this residuum treated by percolation with alcohol (sp. gr. 0·828) did not afford the slightest evidence of the presence of sugar.

M'Nee's food was carefully regulated previous to the experiments of 10th of February, and 6th of March, a change of food being made on the 21st of February:—

Food previous to the 10*th of February*, 1860.

	Urea-equivalent.	Sugar-equivalent.
1. Brown Loaf, 2 lbs. . .	534 grs. . .	9510 grs.
2. Broiled Mutton, 1 lb. . .	660 „	
3. Beef in broth, 3 oz. . .	160 „	
4. Butter, 1 oz.		
5. Porter, 1 quart, ...	54 „ . .	52 „
6. Tea, ½ oz.	19 „	
	1427 grs.	**9562** grs.

[a] After standing twenty-four hours the urine acquired a disgusting cheesy smell, with an odour of whey and sour buttermilk. This was, probably, due to the presence of lactic acid.

Food previous to the 6th of March, 1860.

	Urea-equivalent.	Sugar-equivalent.
1. Brown Loaf, 1 lb. . . .	267 grs. . .	4755 grs.
2. Eggs, 2, ...	64 ,,	
3. Broiled Mutton, 1 lb. . .	660 ,,	
4. Beef in broth, 3 oz. . .	160 ,,	
5. Butter, 1 oz.		
6. Porter, 1 quart, ...	54 ,, . .	52 ,,
7. Tea, $\frac{1}{2}$ oz.	19 ,,	
8. Whiskey, 6 oz.		
	1224 grs.	**4807** grs.

M'Nee's food remained unaltered from the 21st of February, to the 9th of May; but about the 1st of May, his appetite decreased, and his general health became worse.

The urea discharged never exceeded the urea due to the food ingested, and apparently assimilated.

The sugar discharged, on the average, reached **7526** grs. per day, during the period in which the sugar due to the farinaceous food ingested only amounted to 4807 grs.

I cannot assert positively that M'Nee had only the food of 6th March during the months of March, April, and May, as he was not watched, to prevent his eating the food left by other patients, but I was repeatedly assured by himself and his nurse, that he was quite satisfied with the food he got. In the case of Murphy, the strictest care was taken to insure accuracy, and I am certain that he obtained access to no other food than that mentioned in my account of his case.

The last case of diabetes mellitus which I shall give is that of — Keogh, aged 48; attack first noticed by patient in December, 1857; in Sir Patrick Dun's Hospital, November, 1859; had been in several hospitals during the previous seven months; attributed illness to exposure to wet and cold; had previously weighed 11st. 7lb.

On the 2nd November, 1859, I examined this case, and found the following results:—

Weight—9st. 3lbs., ... 129lbs.

During 24 hours he passed—

Urine, ... 147℥.,
Sp. gr., ... 1038·12;

which contained—

1. Urea,	750·31	grs.
2. Uric acid,	4·25	,,
3. Alkaline and earthy salts,	396·90	,,
4. Sugar,	4708·40	,,
5. Extractives,	284·80	,,
Total	**6144·66**	grs. per day.

On examining the salts, I found—

1. Sulphuric acid,	66·5	grs.
2. Phosphoric acid—		
[With lime],	75·8	,,
[With alkalies and magnesia],	132·3	,,
3. Chlorine,	155·2	,,
4. Fixed salts per ℥fl.,	2·7	,,

The large amount of sulphuric acid is explained by the fact that sulphuric acid and cod liver oil constituted the medicines he took at the time of my experiment:—

PHYSIOLOGY OF DIABETES MELLITUS.

The facts which have been stated in the preceding pages suggest many inferences bearing on the physiology of this mysterious disease. In order to discuss them, I append the following table:—

Table XII.—*Constants of Diabetes Mellitus.*

Case.	Weight.	Urea excreted per Day.	Sugar excreted per Day.	Urea ingested per Day.	Sugar ingested per Day.
	LBS.	GRS.	GRS.	GRS.	GRS.
1. Owen Murphy. (Mean of nine observations.)	93·56[a]	1182[b]	9773[b]	1349[b]	9321[b]
2. Henry M'Nee. (Mean of four observations.)	152·5[c]	991[c]	7526[c]	1224	4807
3. — Keogh. (Single observation.)	129	750	4708	...	...

[a] *Vide* Table V. [b] *Vide* Table VI. [c] *Vide* Table XI.

The first point to which I would direct attention is the excessive excretion of urea, which I believe will give us the key to this physiological puzzle. In diabetes mellitus, there is a canine appetite, a relish for food, and an apparent assimilation of an amount of food from twice to thrice that which satisfies ordinary appetites; at the same time, there is, notoriously, no *work done* by this food; the mind is sluggish and inactive, and the body is incapable of exertion. This physiological paradox admits, I think, of an explanation, which I shall give further on; at present, I make the following calculation:—

Assuming the following compositions for proteine, glucose, and urea;

Proteine, .	$C_{36}\ H_{27}\ N_4\ O_{12}$.	393 atomic weight.
Glucose, .	$C_{12}\ H_{14}\ O_{14}$ . .	198 ,, ,,
Urea, . .	$C_2\ H_4\ N_2\ O_2$ . .	60 ,, ,,

The following relation is evident:—

(1) Proteine + (23) Water + (3) Oxygen + (4) Carbonic acid = (3) Glucose + (2) Urea (1)

The preceding relation shows the possibility, at least, of proteinic compounds, by the addition of small quantities of water, oxygen, and carbonic acid (which all exist in abundance in the blood), becoming converted into Glucose and Urea; and by examining the atomic weights, it will be seen that such a reaction would produce very nearly 5 grains of glucose for every grain of urea.

Let us suppose that this reaction takes place, and that no mental or mechanical work is done by the diabetic patient. In this case, his natural excretion of urea would be only 2 grs. per lb. of body weight[a].

Combining the preceding results, I find the following distribution of the Urea and Sugar excreted in diabetes mellitus:—

TABLE XIII.—*Distribution of Urea and Glucose excreted in Diabetes Mellitus.*

Case.	Urea due to *opus vitale.*	Urea due to decomposition of proteinic compounds.	Sugar due to decomposition of proteinic compounds.	Sugar due to starch-food.
1. Murphy,	188 grs.	994 grs.	4970 grs.	4803 grs.
2. M'Nee,	305 ,,	686 ,,	3430 ,,	4096 ,,
3. Keogh,	258 ,,	492 ,,	2460 ,,	2248 ,,

[a] Dublin Quarterly Journal of Medical Science, vol. xxx., p. 12.

The sugar excreted, given in the last column, and not accounted for by the decomposition of proteinic compounds, was undoubtedly formed directly from the starch contained in the food, by the following well-known reaction:—

$$(1)\ \text{Starch} + (4)\ \text{Water} = (1)\ \text{Glucose}. \qquad (2)$$

The sugar discharged, appears from Table XIII., in the three cases, to be divisible into two nearly equal portions; one of which is probably formed directly from the starch of the food, and the other probably from the decomposition of proteinic tissues into Glucose and Urea—a destructive process, which requires the system to be renovated by large quantities of nitrogenous food.

In the case of Murphy, I know that no other food was taken than that already specified, and I therefore have no hesitation in giving the following calculation, based, in his case, on the sugar ingested and sugar excreted:—

On the average, the food ingested was capable of producing 9321[a] grs. of glucose per day; and did actually produce 9773 grs. For my present purpose, I shall consider these quantities as practically equal; but they are not to each other in the relation of cause and effect, for the sugar excreted is divisible into two portions:—

1. Sugar resulting directly from starch-food, .	4803 grs.
2. Sugar resulting from decomposition of proteinic compounds, ...	4970 ,,
Total, ...	**9773** grs.

The difference between 4803 grs. and the total sugar-equivalent ingested, 9321 grs. was not employed in the manufacture of Urea or of Glucose; therefore, theoretically it must have gone to produce carbonic acid and water; for, since the fæcal excretions in Murphy's case were reduced to a minimum, and his skin did not act at all, the whole excretions of the body, viz., urea, glucose, carbonic acid, and water, consisted of the four substances just named. If the theory, therefore, of no work being done in Diabetes Mellitus, and of the decomposition of proteine, be correct, we should expect to find the starch, or sugar, represented by the difference between the ingested and excreted sugar formed directly, sufficient to produce the amount of Carbonic Acid, that should be excreted as a minimum.

[a] *Vide* Table VI.

In the Philosophical Transactions for 1859, pp. 686 and 693, Dr. Edward Smith gives as the result of his accurate and original observations on four persons, whose average weight was 160 lbs., in a state of quietude, the quantity of Carbonic Acid excreted by the lungs per day as 26·193 oz. av.: this result, which I believe to be the most accurate hitherto determined, would give 71·622 grs. of carbonic acid, per pound of body-weight, per day.

Applying the preceding to Murphy's case, since his weight was 93·56 lbs., we find the carbonic acid to be excreted in a state of quietude to be 6701 grs. To compare this with the result due to the oxidation of the glucose, we have—

Sugar-equivalent ingested not excreted as such =
Difference between total sugar ingested, . . 9321 grs.
and sugar directly formed from starch-food, 4803 „

= **4518** grs.

This glucose would be converted into water and carbonic acid, by the addition of oxygen, as in the state of health, by the following reaction :—

(1) Glucose + (24) Oxygen = (12) Water + (12) Carbonic Acid (3)

By referring to the atomic weights of these compounds, it will be seen that glucose produces carbonic acid in the proportion of 198 to 264, which is exactly 3 : 4. Hence, the 4518 grs. of glucose (or of starch-food equivalent to glucose) remaining in the blood, will be converted into 6024 grs. of carbonic acid, and discharged by the lungs.

This result is too close to that already found from Dr. Smith's experiments to be attributed to any chance, and leads to the following view of Murphy's case, which explains all the facts observed :—

1. There was an excretion of Urea, due to the minimum condition of quietude of body and mind.
2. There was an additional excretion of Urea, caused by disease, and having its origin in a perverted decomposition of nitrogenous tissues.
3. This additional excretion of Urea was necessarily accompanied by an excretion of Glucose, amounting to about half the total excretion of that substance.

4. The remaining half of the sugar excreted owed its origin to the direct change of the Starch-food into Glucose, which was excreted as such.

5. Of the Starch-food ingested, about half was consumed, as just stated, in the diseased production of glucose; the remaining half was excreted as carbonic acid and water, as in health.

6. The carbonic acid thus formed was somewhat less in amount than that usual in health, in a state of quietude of mind and body.

It now remains for me to explain the physiological paradox involved in the phenomena of diabetes mellitus, to which I have already directed attention, viz. that while the food ingested, and apparently assimilated, is from two to four times the usual amount, it produces no work in the system, such as might be expected.

Before explaining this remarkable phenomenon, I shall show that the common theory of diabetes completely fails to afford any clue to its solution.

If Murphy had been in health, and consuming the minimum amount of food compatible with mere existence, he would have produced the following results in work done:—

1. Minimum excretion of urea, ... 188 grs.
   [94 lbs. body-weight, at 2 grs.[a] of urea for each pound, *Opus vitale.*]
2. Minimum excretion of carbonic acid, . 6768 grs.
   [94 lbs. body-weight, at 72 grs. of carbonic acid per lb.[b]]

The urea excreted may be converted into tons lifted one foot, by the rule I have elsewhere given,[c] viz. 39 grs. of urea are equivalent to 100 tons, lifted one foot.

In the healthy production of urea from proteinic compounds, carbonic acid and water are also produced, as appears from the following equation, which is easily verified—

$$(1)\ \text{Proteine} + (75)\ \text{Oxygen} = (2)\ \text{Urea} + (32)\ \text{Carbonic Acid} + (19)\ \text{Water}. \qquad (4)$$

[a] *Vide* Dublin Quarterly Journal of Medical Science, vol. xxx. p. 12.
[b] *Vide* p. 271.
[c] *Vide* Dublin Quarterly Journal of Medical Science, vol. xxx. p. 12.

The carbonic acid and water of this equation are both formed by the combustion of the carbon and hydrogen contained in the proteine, and the work due to this combustion [amounting to 24·33 p. c., and 10·50 p. c. of the total work ascribed to the urea, by the combustion of the carbon and hydrogen respectively] is tacitly involved in the work ascribed to the urea. We must therefore subtract the carbonic acid due to the production of 188 grs. of urea from the total carbonic acid exhaled from the lungs, to obtain the effective work due to the carbonic acid. In equation (4), the urea is to the carbonic acid as 120 : 704; from which it follows that 188 grs. of urea correspond to 1103 grs. of carbonic acid. Subtracting this from the minimum already given, 6768 grs., we find 5665 grs. of carbonic acid to be converted into tons, lifted through one foot.

To convert carbonic acid into work done, I assume, from Favre and Silbermann's experiments, that one grain of carbon will, by its combustion into carbonic acid, raise 8000 grs. of water from 32° F. to 33° F.; and also, from Joule's experiments, I assume that the heat requisite to raise one pound av. of water from 32° F. to 33° F. would lift 772 lbs. through one foot.

From these data it follows, that the combustion of 100 grs. of carbon is equivalent to 39·39 lbs. lifted through one foot.

Without giving the details of these calculations, I infer that—

I.—*Murphy in Health* (94 lb. wt.)

1. Excreted 188 grs. of urea, equivalent to	482 tons,	lifted one foot,
2. Excreted 5665 grs. of available carbonic acid equivalent to	618 ,,	,, ,,
Total work done,	**1100 Tons** ,,	,,

This is the minimum result, consistent with bare existence in health, in a state of quietude of mind and body. I shall now compare with this result the common theory of diabetes, which supposes the sugar to be formed from the starch-food alone. In the case of Murphy, the starch-food ingested, as I have already shown, was about equivalent to the Glucose excreted, a circumstance which would, at first sight, appear to

confirm the common theory. This starch is converted into glucose by simple hydration, as appears from equation (2); and although this process must be attended with the giving out of some work, it is probably not much in amount.

But, on the common theory, the urea is supposed to be produced as usual, that is, by equation (4), and therefore to be accompanied by its usual and healthy equivalent of work done; viz., 100 tons per 39 grs. urea. Hence—

II.—*Murphy in Diabetes* (Sugar produced by Starch-food).

1. Excreted 1,182 grs. urea equivalent to	3031 tons lifted one foot.
2. Excreted 9773 grs. of sugar, due to starch-food ingested, ...	— „ „
	3031 Tons „ „

This result is nearly three times the minimum work necessary to have kept the patient alive in health. No account is given by this view of diabetes of what becomes of the surplus work, which is inevitably produced, if the common theory be true; and the unhappy patient himself, by his vacillating and feeble mind, and helpless body, contradicts it. It is, further, disproved by the well-established fact, that sugar continues to be produced, though in diminished quantity, when all starch-food is carefully withheld.

This latter fact corroborates, I think, the theory which I propose, which assigns a double origin to the glucose excreted, part being due to starch-food, and part to the decomposition of proteine suggested by equation (1). Comparing this equation with the healthy action indicated by equation (4), we see that the former is a decomposition, the latter a true combustion, and that it is probable that in the diseased condition the proteinic compounds resolve themselves, without giving out Work, into Glucose and Urea; whereas, in the healthy action 75 : 3 compares the relative oxidation in health and disease; and the process, instead of being accompanied by the *retention* of carbonic acid, is attended by a large excretion of that product.

I now calculate the work done, according to my own theory—

III.—*Murphy* (*Diabetes*), (Double origin of Sugar, from Starch-food and Proteine).

1. Urea of *min. op. vitale*, 188 grs., ...	482	tons.
2. Carbonic acid excreted, due to the combustion of 4518 grs. of glucose, as per p. 271; = 6024 grs. .	657	,,
	1139	,,
Deduct 79·5 tons, equivalent to 729 grs. of carbonic acid, *retained* by the diseased production of 994 grs. of urea, . . .	79	,,
Total work done,	**1060**	tons lifted one foot.

This result is very close to **1100** tons, which has been already shown to be the minimum consistent with life, or continued existence; and shows that the physiological paradox of diabetes disappears by the application of this theory. The unequal struggle between food and excretion exhausts its victim; and though it can be maintained for a considerable time in the case of the wealthy and well-advised patient; to the poor man it brings total loss of his power of work of mind or body, which to him means death.

The uncertainty that exists as to the actual amount of food used by M'Nee renders it difficult to make a similar calculation for his case; but it could be easily shown, that in this case, also, the supposition of a double origin for the sugar would account for the amount of sugar, and for the absence of work-done; the carbonic acid being accounted for by the fat of the food used.

The two theories of diabetes may be thus briefly compared:—One theory assumes the sugar to be formed exclusively from Starch-food; the other assumes it to have a double origin, partly from Starch-food, and partly from Proteinic compounds—these two origins giving about equal quantities of sugar.

The first theory fails in two ways: it does not account for the presence of excreted sugar, when all Starch-food is carefully excluded; and it fails completely to explain the large excretion of urea, which, on this theory, ought to be accompanied by an amount of Work done that is nowhere discoverable.

The second theory explains the presence of sugar in the excretions on almost any description of food; and also gives a rational explanation of the large excretion of urea, by attributing it to a decomposition, not attended by the development of Work done.

On both theories, a large proportion of the food consumed is wasted in the production of sugar. In the first theory, this waste of food occurs in the conversion of starch into glucose, which is excreted as such, without giving out Work; in the second theory, a similar waste occurs in the spontaneous decomposition of Proteine into Glucose and Urea, which is supposed not to be attended with the giving out of Work; but the essential difference between the two theories is, that, while they both offer an explanation of the excretion of Glucose, the first theory fails to explain the corresponding and equally remarkable excretion of Urea, a phenomenon which is satisfactorily accounted for by the second theory.

The account given by Prout of the physiology of diabetes is, although very vague, in accordance with the theory I have here laid down. Thus, he admits that some of the Starch-food is excreted as sugar, and some assimilated, and that a similar statement applies to the gelatinous, albuminous, and even the oleaginous aliments—a statement so large as to embrace almost any theory of the origin of the excreted sugar. He makes also a similar statement with regard to the tissues, and also attributes to the kidneys the function of completing the formation of the sugar:—

"When *organized* saccharine principles, as farinaceous matters, &c., are taken into the diabetic stomach, they are, in the first place, reduced to the form of *low* sugar; part of which low sugar is assimilated as in the healthy stomach; while another part is modified, or remains unassimilated. The portion that is assimilated is applied to the purposes of the economy; the portions modified and unassimilated pass together through the system to the kidneys, by which glands the portion modified is disorganized, and finally appears in the urine as crystallisable sugar, along with the portion originally remaining unassimilated in the stomach. The same remarks are applicable to gelatinous, and, in extreme cases, perhaps, to albuminous and oleaginous aliments. The *secondary* assimilating processes in diabetic individuals participate in the derangements of the primary processes just detailed: that is to say, the gelatinous tissues are either reduced to sugar, and thus not assimilated at all, or they are imperfectly assimilated, or they are mal-assimilated; in all which conditions, the saccharine principle de-

rived from the gelatinous and other tissues may be supposed to pass through the system to the kidneys; by which organs, like similar matters brought from the stomach, the various modifications of the saccharine principle are further disorganized, and converted into crystallisable sugar."[a]

In another passage, Dr. Prout endeavours to account for the occurrence of lactic acid, at least occasionally, in diabetic urine: a fact which he seems to have himself noticed:—

"When, in diabetic individuals, the disorganizing function of the kidneys is suspended, or when these glands are partially diseased, the urine, besides albuminous matters and more or less of crystallisable sugar, often contains the saccharine principle *in imperfectly developed forms.* Hence such urine, almost without perceptibly becoming vinous, passes at once into the lactic or acetous fermentation, and acquires, from the quantity of lactic and acetic acids developed, the strong acid smell of sour milk."[b]

In conclusion, I would observe, that the well-known fact, that pulmonary tubercular disease generally accompanies the closing stage of diabetes, is well worthy of more attention than has been hitherto bestowed upon it. It is strange that some theorists should attribute phthisis to excessive oxidation, and others to deficient oxidation. Now, there can be no doubt, whatever theory of diabetes be adopted, that the excretion of Glucose in large quantities, a highly valuable and unoxidised compound, indicates a deficient oxidation of the tissues; this deficient oxidation coexists in diabetes with the early stages of tubercular disease, which latter must therefore be regarded rather as a disease accompanying defective oxidation of the blood, than one resulting from excessive action of oxygen.

Art. XVI.—*Some further Observations on the Paralysis of Early Life.*—By Henry Kennedy, A. B., M. B., one of the Physicians in Ordinary to Sir Patrick Dun's Hospital.

(Read before the Obstetrical Society.)

It is now very many years since the attention of the profession was directed to the subject of infantile paralysis. Till that period, except a passing notice in Underwood's work, nothing had appeared about it. Since then, the disease is better known, and noticed in most of the systematic works,—

[a] Prout's Stomach and Urinary Diseases, p. 37. Third Edition.
[b] Ibid., p. 38.

as Chruchill, West, Rilliez, and Barthez, &c. What was then advanced attracted much more notice than, in truth, it appeared to myself to merit, both in France and England; and even in the very valuable course of lectures lately in course of publication in the *Lancet* by Brown-Séquard, the labours of Dublin men have been particularly stated. The subject, I believe, then, is one of some interest, and possibly requiring to be better known; and though I have little to advance that is new, it has appeared to me that I might venture to bring it again before the Obstetrical Society. You may all recollect a very interesting communication on the subject, some time since, by Dr. Hardy.

Possibly a brief notice of the cases which have latterly come under my notice will not be out of place, as affording grounds for a few remarks:—

Case I.—A child of 16 months of age, running about, was brought to me by its mother, who said it had lost the power of walking. The child was a very large gross one. I found that no inducement could make it stand, as the right leg seemed quite powerless. But it could be handled freely, as there was no increased sensibility whatever. The only cause which seemed likely to have led to the attack was deranged bowels; and acting on this idea, it got active powders and a couple of warm baths, and within a week it began to use the leg again, and was shortly going about.

Case II.—A girl of 10 months old, and at a time when the bowels were very much deranged, got a very serious attack in the head, like hydrocephalus, and yet not going through the stages of that complaint. It became very heavy and stupid, but still swallowed. A blister was applied to the vertex, and it was given steadily aperient powders, with some calomel in each. Under this plan, the stupor gradually lessened after some days. As it disappeared, it was found that the left arm had become paralysed. If raised up, and then let go, it would drop at once, in a very marked contrast with the opposite one. Treatment, including friction to the arm, was directed; but unfortunately I am unable to give the result, as I lost sight of the case. From the experience of other cases, however, my impression is that the child would get well.

Case III.—A girl of five years old was seized with pain and inability to move the right leg, and any attempt to do so clearly caused great suffering. When held up under the armpits,—and it may be observed that this is a very good way of ascertaining the state of the lower limbs,—the affected leg

hung flaccid, a marked contrast to the other; and it even conveyed the idea of being longer. The child was cross, the tongue furred, and the bowels very much confined. After an active dose of medicine and a warm bath, the child was, even the next day, better, and it very soon and steadily got well. This child had a delicate look, and very fine skin.

Case IV.—An infant of seven weeks old, affected with syphilis, was brought to my house. Two days before my seeing it, the right arm was observed to have become powerless. It presented the usual features, and without any increased sensibility. The rash, &c., of syphilis were but too well marked. It was directed small doses of grey powder night and morning, and at the end of three weeks was completely cured.

Case V.—Anne M'Nalty, two years of age, was seized with loss of power of both the legs. She had been observed before this to trip and fall constantly, and she had great restlessness at night. The discharges from the bowels were very dark. She was directed a douche bath daily, and to get one grain of calomel every night. At the end of eight days there was a marked improvement, and by the twentieth day the child might be said to be cured.

These cases, to which I might have added one or two more, give fair examples of the kind of paralysis to which I would draw attention. It is curious to observe the marked contrasts which exist between some of the cases, as regards the sensibility of the affected part, being in some very great, and in others entirely absent. I may observe that something like this may be met in certain cases of paralysis in the adult; for I have seen considerable suffering from pain in the paralysed limb. But it is not by any means so common as in the child. It proves, if proof were necessary, that there are at least two sets of nerves, with distinct functions; either or both of which may be affected in paralysis. But what, then, are the causes of the paralysis of the young? Since I last addressed you on the subject, we have had the advantage—at least, most of us—of hearing the able lectures of Brown-Séquard, in this city; and I think the purport of the whole of them went to show, and in a very convincing way, that an irritation set up in any part of the frame was capable of exciting the whole nervous system; of which he showed us a very striking example, by the artificial production—if I may so say—of epilepsy in a guinea pig, in which a nerve had been previously cut in the side of the head. This kind of result is now commonly set down to reflex action. But whilst

it may be allowed that the disease and the previous experiment stand to each other as cause and effect, not only in this, but in analogous cases, it must not be overlooked, that of the precise mode of action we are in complete ignorance. I must say, however, that this single experiment of Brown-Séquard goes farther to give us definite views on a most important point than if we had been observing disease for years, and shows the great value of physiology as a real foundation for medicine. It is quite true that for a long period the idea obtained, that irritation, in some parts of the frame at least, was capable of exciting disease elsewhere. But what we wanted was the absolute proof of the fact, and this we have now got. The form of paralysis brought before you has great light thrown on it by the experiment just alluded to; for it seems clear that a very trivial, I might say transitory, irritation, affects in distant parts the susceptible constitution of childhood. Hence the paralysis, which might almost be called temporary, of which examples have been given this evening. Of the most common cause of it there can, I think, be now no doubt—that it is situated in the intestinal canal, arising from either deranged secretion, constipation, worms, &c.

The result of treatment seems to prove this; for in the great majority of cases the paralysed limb soon recovers its powers, and apparently in direct proportion as the secretions improve. Besides irritation in the bowels, there can, I think, be little doubt that the irritation of cutting a tooth, or teething, is capable of causing paralysis. We know it can cause convulsions, and may conclude that it may likewise cause paralysis, even though we admit our total ignorance why convulsions arise in one case, and paralysis in another. Deranged bowels will cause either; and here we are just as ignorant why such a result occurs.

But we are not to suppose that all cases are of exactly the same character as those detailed. Some are much more serious; and here it becomes a matter of practical moment to be aware of the fact. On another occasion I have spoken of cases of paralysis mixed up with chorea, and which, you can readily understand, will be much more difficult of cure. But probably the most serious of what may be called the curable cases are those which arise after fever, usually of the gastric type, and of which the late Dr. Graves has given examples[a]. This form occurs in adults; and probably those whom I address

[a] A paper on this special part of the subject was read by myself before the Surgical Society. Cases occurring in both children and adults are there given.

may have met it after a bad confinement, when it may affect one or both of the lower limbs. It is most common, however, in the form of paraplegia. The following case occurred to me about three years since:—

Case VI.—A lady was confined in the country. I understood there was a good deal of hemorrhage, and her recovery was very tedious. On striving to walk, it was found she could not stand alone. I saw her after this state had continued for some weeks, but could not detect any special cause for the weakness of the limbs, except that she was considerably reduced, and her general health impaired. Under the use of large doses of bark, and an improved diet, this patient got well at the end of three months later. I may mention that, in some cases of tumours in the abdomen, great weakness of the lower limbs is not very unfrequent; and I rather think some affections of the uterus give rise to the same state, particularly in hysterical constitutions; but on this point I would rather hear the opinions of those present.

Though most cases of the paralysis of childhood, leaving out, of course, those arising from an organic cause, may be referred to one or other of the varieties glanced at this evening, still instances do occur, and we should be prepared for them, that it is not easy to refer to any class. The following seemed of this character:—

Case VII.—The child of a poor woman came under my care. It was ten months old, and the mother said there was something wrong with the left arm; and that she blamed a hurt for it. On examination I found the arm wasted and flabby, and the head of the humerus was clearly not kept up as is natural; nor could I induce the child to make the slightest effort to move it. It could be freely handled. The health of the child was not good; but it had hooping-cough at the time. Under treatment, of which friction formed a part, there seemed to be some improvement; but I lost sight of the child soon after, and my impression is, that any thing of a complete recovery was scarcely to have been expected.

I have given this case, partly because it was thought some injury had been inflicted; and it is necessary to be prepared for a statement of this kind; for many cases of the disorder come on so suddenly that mothers will not believe but that the nurse has given the part some strain, which of course she denies; and unpleasant suspicions may, I know, arise from the occurrence. It is not to be denied, however, but that a violent pull—and I think I have seen nurses jerk children along—might be followed by paralysis and wasting; and it is possible

that the case given was of this kind; for it differed from any other one I have seen, in the flabbiness of the arm, and wasting. Cases exactly of this kind have occurred in the adult; that is, where a shock, to the shoulder for instance, has been followed by atrophy, and loss of use of the arm. I have read, too, of punctured wounds leading to the same results. It is scarcely necessary to add, that in the case given, there was no evidence of organic disease of either the spine or brain. One other case would I give, before concluding these remarks.

Case VIII.—Davis, a girl, aged 5 years, admitted into Sir Patrick Dun's Hospital, August, 1858. She had lost the use of both lower limbs, and it was stated that two months previously she had fallen asleep on wet grass, and that shortly after she began to have difficulty in walking. She was in very good condition, being fat, and her flesh firm; but all power of walking seemed to be lost; and tickling the soles of the feet caused but a very slight reflex action. The affected part could be freely handled. The abdomen was swollen, and hard to the feel: and the bowels were confined. After a month's treatment this patient was much improved; she was able to walk, though badly. The legs had a tendency to cross, and a little thing threw her down. Whilst so far advanced, she was taken out of the hospital; but I think that there are grounds for saying, that she would ultimately have got quite well. The treatment consisted in douche-baths with good friction, and a course of purgatives given at regular intervals; and finally she was directed a medicine from which I have seen advantage arise in some of these cases, I mean, sulphur.

This case is worthy of note on account of the apparent cause of the paralysis. It is the only case I have met in the child where cold and wet seemed to lead to the disease. In a former paper two cases were spoken of where the persons fell asleep on the grass, so as to press on one arm; and on awaking, it was found they had lost the use of them, nor did they ever recover it.

You will have understood that all the cases given this evening were free of any organic disease, such as would cause paralysis. Hence, if the diagnosis be correctly made, it arises that all the instances recovered, except No. VII.; and in it there was no sign of any thing wrong in the spine or brain. In my own experience, the cause which is common beyond all others in leading to the disease is some one or other form of deranged bowels; and attention to this point seems to me essential in treating the affection. Even when there are no signs of derangement, I believe our best course is to give pur-

gative medicine, with occasional baths. Brown-Séquard seems to question whether deranged bowels cause the disease, and is more inclined to attribute it to enteritis, which he considers that others, with myself, have overlooked. That enteritis may cause the disease, I have no doubt; but I am pretty confident that there are also cases which arise from simple derangement; and I found this opinion on the fact, which I have often verified, that three or four days are sufficient to cure many cases,—a period of time too short to suppose that enteritis was present; and, on the other hand, when there were grounds for supposing that enteritis had existed, as shown by preceding fever of a particular type, in such the recovery was very slow, and the cases generally of a much more serious character. Hence I think myself fully justified in concluding that these two causes do exist; and that it is essential to both the diagnosis and prognosis of these affections that they should be separately considered.

Art. XVII.—*Case of Chronic Laryngitis, in which Tracheotomy was performed.* By J. H. Wharton, A.B., F.R.C.S.I., L.K. and Q.C.P., Surgeon to the Meath Hospital, Lecturer on Surgery in the Ledwich School of Medicine, Peter-street; Examiner in Surgery, Queen's University.

In the Dublin Hospital Gazette of November 15, 1859, I published a case of laryngeal disease, in which the above operation was performed with success—a success which I may here remark has been permanent, as I have within the course of the present month, September, had an opportunity of seeing the subject of it. As another case has since occurred to me in hospital practice, I propose to place it also on record, for a reason which I have elsewhere expressed, that it is the duty of hospital surgeons to contribute as far as in them lies to the support of an operation so well established, and so beneficial in cases to which it may be *legitimately* applied. I say *legitimately*, because I fear that the operation in question is sometimes undertaken without due regard to its applicability,—as, for instance, in certain cases of croup and diphtheria, where the urgency of parents, rather than the advisability of such a proceeding, is made to influence the surgeon. I do not venture to make this remark, which I do with great diffidence, on my own responsibility, nor yet for the sake of making a merely gratuitous observation, but because I happen to know that

such was the teaching of that eminent surgeon, Mr. Porter[a], whose loss the Dublin school so deservedly deplores, and whose opinion in diseases of the larynx might be regarded as oracular; indeed, not long before his lamented decease, I had an opportunity of testing his opinion on this subject, having had the benefit of his counsel in a case of diphtheria, to which I was hastily summoned, to perform tracheotomy; and also because I have myself seen, and heard from others, of the inutility of following the course just alluded to, and the propriety of which I have dared, perhaps presumptuously, to question[b]. The following is the history of the case which led to the foregoing remarks, as described by the patient.

Edward Malone, aged 41, by occupation a bricklayer, admitted into the Meath Hospital, December 25, 1860, "about eight months ago was out working; and having been much exposed to the weather, which was very severe, caught cold, and became hoarse; the hoarseness continued till his admission. About two months ago his throat became inflamed and very sore, two ulcers having formed in the palate, and his breathing oppressed, particularly on making any exertion. For these symptoms he was treated with alum-gargle, and bark was administered internally, but without any good effect. With the exception of his present ailment, and an attack of syphilis, which occurred twenty years ago, he has always enjoyed good health. For the syphilitic affection he was treated with mercury, and had no secondary symptoms. As his difficulty of breathing had suddenly become much more urgent, he was recommended to obtain hospital care and attendance." On admission, the patient's respiration was most laborious, struggling, and stridulous in its character; voice peculiarly hoarse. In addition, he had cough, spasmodic or rather convulsive in its mode of attack; and during its paroxysms, more especially, his pectorals acted with marked energy, the patient grasping at the sides of the bed to obtain relief; countenance expressive of anxiety; pulse quick and small. On examination of his throat, two apertures were seen

[a] See Porter on the Larynx and Trachea, 1837, p. 35, *et seq.*

[b] In connexion with this subject, I may be permitted to quote from Professor Miller. Writing of Albucasis, he says—"Though thus bold in his operations, and, like all the Arabians, too fond of the employment of instruments, he was not, however, without judgment and caution. For example, he condemns tracheotomy as worse than useless when the inflammatory affection of the windpipe is acute, and has extended to the bronchi; an opinion which is acknowledged as true, though, unfortunately, not always followed in the present day."—*Historical Notice of Surgery.*

in the upper part of the soft palate, about a quarter of an inch separate from each other; through each of these a large probe could easily be passed. The mucous membrane of the mouth and soft palate, on its anterior aspect, was pale; and the epiglotis, *so far as it could be examined*, felt rough, but did not present to the eye any well-marked sign of inflammation.

The pharyngeal mucous membrane, however, presented an aspect very different from that of the mouth, both as regarded colour and condition,—the former being dull red, and the latter containing several eminences apparently tubercular, or more correctly "granular," as this term bears an appropriate pathological relation to the morbid appearance of mucous membranes elsewhere, as in the solitary glands, and those of Peyer, in some forms of palpebral conjunctivitis, and as the result of chronic gonorrhœa and tonsilitis, &c., &c. These changes are evidently due to chronic inflammation, whereby the natural secretion from the mucous glands and follicles is altered in character, giving rise to muco-purulent, lymphy, caseous, and calcareous exudations. The glands and follicles themselves become enlarged, their epithelium thickened, and their ducts obstructed. The submucous tissue also becomes implicated, should this affection be not arrested by appropriate treatment. No doubt, from the proneness which mucous membranous inflammation has to spread continuously, the laryngeal mucous membrane will be most likely involved, as I am inclined to believe occurred in the case under consideration[a].

The treatment consisted in the rapid administration of mercury; but, notwithstanding its admitted power in this disease, the patient's symptoms became so rapidly urgent, that on the morning of the 27th, after full consultation, it was considered necessary to have immediate recourse to tracheotomy, which the patient most gladly assented to, which he bore admirably, and with the immediate result of which he expressed himself as most thankful, a feeling not to be wondered at, for there are few operations within the whole range of surgery which bring with them more instantaneous relief. The further medical management of the case need not be detailed, except that mercury was continued until its use was suspended in consequence of the supervention of diarrhœa[b]; a nourish-

[a] See an excellent Lecture on Chronic Granular Laryngitis, by M. Mandl. Medical Circular, March 20, 1861.

[b] To check the diarrhœa, it became necessary to administer opium, which was used with tolerable freedom, in repeated doses, both by the rectum and mouth. The patient, however, was very susceptible of its physiological action, so that he became narcotised, and required the administration of strong coffee and ammonia.

ing and somewhat stimulating diet was allowed to the patient, who, having made an excellent recovery, was dismissed at the end of a month from hospital.

Upon referring to my note-book, I find the following remark:—"Saw this patient several times since his dismissal, and found him free from all laryngeal symptoms." Mr. A. W. Foot, to whom I am much indebted for his constant attention to his hospital duties, informs me that he has seen Malone within the last week, "quite well."

The surgical treatment requires no special remarks in this place, save the following:—The double, or Oble's tube, as I believe it is called, was used from the beginning to the termination of the treatment. In the first case to which I have referred, and which was of a most harassing kind, it was at the termination of the treatment that this instrument was adopted; and as I had then an opportunity of observing its efficacy and convenience, I determined to give it a further trial, should an opportunity present. To its use on this occasion I attribute not a little of the favourable result which has ensued. Thus the patient, I find, slept well at intervals; and when awakened by the collection of mucus, the latter was easily removed by the withdrawal of the inner tube, which, on being cleansed and re-introduced, not only freed him from the collection, but saved him also from the disturbance necessarily caused by the forcing open of the wound which a single tube necessitates. Mr. Porter remarks that of all wounds, that formed in tracheotomy is most liable to contract. The use of the double tube, however, as the external is kept in its place, has a direct tendency to counteract this disposition. The consciousness, too, of the patient that respiration can be carried on during the removal of the inner tube, has a most salutary and re-assuring effect, and, besides, has a direct tendency to lessen the labours of the surgeon and his assistants. Another circumstance to be remembered, with regard to the treatment, I must not pass over; for, from the beneficial effects which followed, I am satisfied, that had I, in my first case, adopted a similar plan, my patient would have been saved from repeated attacks of bronchitis, which more than once terminated all but fatally, and myself and generous assistants would have been spared laborious watchings and attendance. I allude to the necessity of allowing the patient to breathe none but heated air. Thus, immediately after the operation,—which, it will be remembered, was performed during the very severe weather that occurred at Christmas, 1860,—I had the patient's bed removed close to the fire-place, where a large fire was kept up night and

day, and the bed itself was carefully screened; so that, by this means, the patient respired an atmosphere considerably warmer than he otherwise would. This arrangement, I have no doubt, also contributed its share to the successful issue, as thereby the bronchitis which ensued, and which is the chief hindrance to the success of the operation, was greatly modified, and was very amenable to treatment. The operation itself was devoid of any unusual difficulty, excepting so far as the insertion of the tube was concerned; for, in consequence of the violence of the spasm which occurred after the opening of the trachea, the hook which had been inserted lost its hold before the entire removal of the piece to be excised had been accomplished, which then flapped like a valve during the forcible respiration. The operation was concluded by seizure of this valve-like portion with a forceps, which was then removed. During this delay, the upper part of the neck and face became slightly emphysematous, which, however, did not extend after the immediate insertion of the tube; and the air effused was wholly absorbed by the third day.

Art. XVIII.—*Contributions to the Surgery of Hernia.* By Maurice Henry Collis, F.R.C.S., M.B., Surgeon to the Meath Hospital and County Dublin Infirmary; Member of Council, R.C.S., &c.

Two of the following cases have been selected for their own peculiarities; the third, because it forms an example of a deviation from routine practice; all, because they are capable of affording useful hints to the surgeon.

I.—*Long-standing Hernia; ill-fitting Truss; Pelvic Abscess; Resolution.*

A gentleman, ordinarily in good health, aged about 45, consulted me in May of last year for some trifling uneasiness about the perineum. While examining him, I found that he was in the habit of wearing a very queer old double truss, clumsy and hard, which pressed too strongly upon the abdominal walls, had thinned them considerably, and was beginning to press upon the cord and backwards towards the viscera, more especially on the right side. The case being one for support rather than pressure (for the hernia had not come down for a long time), I advised him to wear Lindsay's truss, although in the majority of cases I prefer L'Estrange's, the advantages

of which, in permanently closing the neck of the sac, are unequalled. In the present case, I wished to allow the abdominal muscles to recover themselves, which they could only do by withdrawing pressure; at the same time, it was necessary to afford support, so as to prevent a fresh protrusion of intestine. I did not again see this gentleman professionally until Sunday, March 17, 1861, when he complained of being "bilious" and chilly, with general debility and want of energy. He had certainly lost flesh, and looked out of sorts. Locally, he complained of a sickening pain about the testes and penis, increasing at the time of micturition, its seat seeming to be in the urethra, at the root and top of penis, not in the glans. Urination rather frequent; the urine not increased in quantity; high-coloured, not very acid, and devoid of sediment. Bowels had been costive for some two or three weeks, for which period he had felt ill.

On examining him, I found that he still wore the old truss. The testes were remarkably pendulous; there was slight pain on pressure, deep in the abdomen, just behind and above where the truss pressed on both sides; the painful spots were only perceptible on a very careful examination, and there was neither hardness nor swelling round them. His pulse was of natural frequency, but weak; tongue clean, appetite indifferent. I ordered some fluid magnesia, and repeated my advice about the truss, requesting him to call on me on Tuesday, that I might see if it fitted, &c. He did not do so; but on Thursday, the 21st, I again saw him in the afternoon, looking rather worse, more miserable, and chilly, complaining still of irritable bladder, and not satisfied with the action of his bowels. I urged rest, but was told it was impossible until after Saturday. I then ordered him a warm hip-bath, and a draught containing camphorated tincture of opium, to allay irritability of bladder.

On this occasion I again examined him carefully. The pain about the rings, though increased, and evident on pressure, was still trifling. There was no general tenderness, and no sort of hardness or swelling. The pulse was low and weak—about 70; tongue clean, and no appetite.

Friday, 22*nd*, 5, *p.m.*—I saw him after a hard day's work, both mental and physical, and found him so much worse, that I urged him to give up the next day's work to some one else, which was ultimately done after much opposition, and not till I told his friends that I dreaded cystitis, and perhaps peritonitis, if he did not give in. I made no examination this evening, as he was much fatigued, and the least movement was a

source of distress to him. The hip-bath was repeated: and two grains of calomel, some James' powder, and blue pill, were prescribed, to be followed by a mild purgative in the morning. This night he slept badly, had shivering, almost amounting to rigor; and on next morning, the 23rd, I found him in bed, complaining much of pain in the abdomen, which was full; the hypogastrium swollen and tender, from one spine to the other, especially at the right side, where there was much hardness, and at the same time resistance to handling, from muscular tension. On relaxing the abdominal walls by position, the hardness could be felt to extend across the hypogastrium to the left ring; but its main seat was at the right side of the bladder, along the course of the vas deferens. There was also tenderness down the cord, and some fulness at the external ring. Urination more frequent than ever, but no pus in the urine, only much pink sediment was thrown down when it had cooled. The pulse was about 80, full, but not strong. We had here evidently inflammation of the areolar tissue, outside the bladder, spreading to the muscular coat and down the cord, and threatening both the peritoneal and mucous coats. Six leeches were put on at once; and three grains of calomel, three of James' powder, and three of Dover's, were given every sixth hour. I saw him again in the evening, and found the inflammation already checked. The hip-bath was again repeated, and a thin poultice, covered with oiled silk, laid over the hypogastrium; the pills continued.

Next day, 24th, I found that he had passed a fair night; his symptoms were all somewhat better, but he felt more prostrate, and was still in miserable spirits. There was less tenderness at the left ring, and the swelling there and over the bladder had sensibly diminished. The swelling at the right side seemed stationary; it was very hard, and there was some slight œdema of the integuments over it; he could not bear much handling. I now felt satisfied that the irregular rigors of the night of the 22nd (erroneously ascribed by himself and family to a chill after the hip-bath) had been premonitory of the formation of matter deep in the pelvis. I was not, however, satisfied that matter had actually formed; and I determined to continue the mercury until a decided impression was made upon the inflammatory swelling. The same dose was accordingly continued until the morning of the 26th, when the swelling was palpably lessened; and from being smooth and globular, had become somewhat irregular in outline. In the afternoon of the 26th, the family becoming somewhat tardily alarmed, Mr. Hutton was called in. He

readily recognized the tumour, but, with characteristic caution, declined to commit himself to its nature for a day or two; and recommended the system to be kept under the influence of mercury, which was done in a most effectual manner, but without salivation, by hourly doses of one grain of blue pill, a quarter of a grain of calomel, and a grain of James' powder, together with a large blister over the tumour, and a dressing of mercurial ointment. The rapid diminution of the swelling under this treatment enabled Mr. Hutton to corroborate my views in the course of two days. Resolution was further hastened by large doses of chlorate and hydriodate of potash; and in a fortnight from the first exhibition of mercury, I had the satisfaction of noting the complete disappearance of all enlargement, and my patient was able to move about his bed-room.

II.—*Congenital Hernia, Strangulated, with complication; perforation of intestine, and death.*

An old man was admitted into the Meath Hospital on the 10th of August, in the present year, suffering under symptoms of strangulated hernia. In my absence, he was seen by two of my colleagues; taxis was tried, and a portion of intestine appeared to return after its use for a few minutes; his hiccough disappeared, the vomiting lessened; but there was no movement of the bowels, in spite of enemata. Chloroform had been given, and opium in full doses. There was a large pyriform tumour of the right side of scrotum, tender to the touch, and slightly red, solid, except in one point, where percussion elicited a tympanitic sound. The symptoms were not urgent, and nothing further was done at the time or next day.

On Monday, the 12th, I saw him; he had then a large pyriform tumour of a bright red colour in the right half of the scrotum, very tender to the touch, hard, and resisting when pressed, and decidedly dull on percussion, except at the very summit of its centre, in a space not larger than a sixpence; the ring was large, allowing the ready descent of what seemed to be intestine into the upper-third of the tumour and its tolerably easy return with gurgling upon taxis; while upon the lower two-thirds pressure could scarcely be endured, and made no change in its former volume. The history of the case was of rupture of nine months' standing; an ill-fitting truss, which gave pain, and allowed of the descent of the intestine; then, a few days before admission, sudden increase of pain, with constipation and vomiting; these were accompanied by increase in rate of pulse, foul tongue, general languor, and drowsiness. As

the vomiting recurred at intervals, and I had no satisfactory evidence of the bowels having been moved, I ordered an enema with long tube to be administered, and repeated doses of sulphate of magnesia in the acid infusion of roses to be given. Four leeches were put on over the scrotum, and four over the cord, to be followed by stupes and poultices; and on the 13th (next day), I found that the bowels had been very freely moved; his general appearance was improved; there was much less redness, swelling, and pain in the scrotum; there was some slight tenderness of the hypogastrium, which led me to administer minute doses of calomel, and full doses of opium, for a couple of days, when this lessened. He lay always on his back, with legs extended, sleeping placidly, and not complaining when roused. I saw him daily, and observed little change; there was some vomiting at intervals, but he took wine and beef-tea; the scrotal tumour still continued; four leeches were again applied to it, and it again diminished, but it became darker and congested; his pulse became feeble; his appetite failed, but he complained of no pain. On the 17th his friends suddenly removed him without leave, but brought him back on the evening of the 18th, only to die in the night.

Post-mortem, 19th, at 10 A.M.—I removed the dartos and all within it up to the internal ring, which I also removed. Upon opening the abdominal cavity, by cutting wide of the ring, I found a piece of intestine entering the inguinal canal, and another leaving it; these I tied, and removed with the tumour. I had then an oval or obovate tumour, into which a loop of intestine passed. Opening the tunica vaginalis, which was thin, I found it adherent on its inner surface to a knotted coil of intestine, which was in a highly inflamed and congested condition; lifting up this coil, I found the testis lying behind it, of its natural size and colour; upon slitting up this sac, I was stopped by a ring which lay about three-fifths of the way up. The edges of this ring were very thick and hard, and its diameter might be about an inch. On dividing this ring, we came on an upper sac, which was a third less in size than the lower one, and contained intestine, almost free from inflammation or congestion, thus contrasting remarkably with the lower sac, which, with its contents, was far advanced to gangrene; the feculent contents of the upper end of the intestine passed easily along the canal and through the injured rings, and thus gave the semblance of a ready return of the intestine. The neck, or hour-glass contraction, which formed the point of communication between the two sacs was so dense and unyielding as to have caused ulceration of the ascending

and descending coils of intestine at this point, with fæcal extravasation into the peritoneal cavity; this was evidently quite recent, as there were no signs of peritonitis. We had carefully observed the appearance of the tumour previous to opening it, and there was nothing to lead us to anticipate any such curious complication as this double sac. During life also the symptoms and signs had pointed to temporary strangulation of a comparatively recent hernia, complicated with inflammatory enlargement of the testis: this diagnosis, at least, appeared the most probable, though we were by no means satisfied with it. It was not until the sac was ripped up from end to end, that the true nature of the case became evident; nor do I well see what could have enabled us to arrive at the truth during the man's life. The urgent symptoms were readily relieved; the intestine apparently returned with ease, the redness from the first closely resembled orchitis, the very form and outline of the swelling being identical with this affection; even the position of the man, lying on his back, with legs extended, and free from any great pain, with the bowels freely acting, and with a history that said nothing of congenital hernia; all combined to deceive us, and lead us away from the real mischief. At the same time, there was much that was strange; the tumour remained as no orchitis would do; and we were never thoroughly satisfied with our diagnosis.

Looking back on the case in the light thrown upon it by the post-mortem appearances, we find that the man had always a congenital hernia, of the existence of which he remained ignorant until some nine months back, when it would appear to have increased in size, and attracted his attention. He applied an ill-fitting truss, and by degrees the proper neck of the sac became much thickened; and, as it thickened, it was pushed down by further descent of intestine, until, by degrees a second sac was established above the congenital sac, and communicating with it by a narrow opening. Strangulation then occurred in the usual way by the descent of some intestine, and much fæces into the lower sac; and the apparent reduction of intestine was the emptying of the portion in the upper sac, accompanied as usual by gurgling. The edges of the contracted part were very thick, firm, and perfectly smooth, with a hard edge toward the intestine, and presented no appearance of tear, recent or remote. I mention this because one hypothesis was that the upper sac was the original one, and that it had burst into the tunica vaginalis. Close inspection showed this hypothesis to be impossible, though it might render the case more easy of explanation. I think that the record of one extraor-

dinary case, even though unsuccessfully treated, carries more instruction than a dozen successful cases in which there was little deviation from the ordinary course of things.

The third case is an example of the successful application of a piece of old conservative surgery, which is not in sufficient favour with Dublin surgeons, although most of the best surgeons in London have long given in their adhesion to it. It is a case of ordinary femoral hernia in a female, aged 40, treated by Petit's operation of dividing the stricture without opening the sac. The hernia was of three months' standing, and small. Although the patient had never worn a truss, the impression conveyed to the finger was of a very thick sac, or of a mass of gland spread over the sac; strangulation had probably existed for four days, and the ordinary treatment had been used before I saw her, but without making any impression on the tumour. At this period there was some vomiting, the abdomen was somewhat swollen, tender to the touch at the lowest point; elsewhere soft; water was passed in small quantities, with a little pain; the pulse, though quick, was soft and compressible; the expression of countenance was cheerful. Taxis made no impression on the tumour; and as enemata, &c., had been tried in vain, I proceeded to operate at once.

I made a vertical incision one inch long, commencing at a point corresponding to the edge of Gimbernat's ligament; having divided the integuments and fascia down to the outside of the sac, I carefully insinuated the edge of my nail under Gimbernat's ligament, and, slipping up the hernia-knife, divided the ligament to a slight extent; I then gently compressed the tumour for about half a minute, and emptied the intestine of its contents, and finally reduced it. The sac was small, and its adhesion to the investing membranes weak. I accordingly detached these as far as the ring, and pushed the sac up by inverting it, like the finger of a glove; it was so short and thick as just to fill the ring, and act as a plug to prevent fresh descent of gut, while at the same time it could not reach into the abdomen so as to act as a foreign body. The case went on very well under the exhibition of opium.

The result of this case proves that I should not have been justified in opening the sac, and thereby increasing the risk of the operation unnecessarily. The tenderness of the tumour and the pain over the lower part of the abdomen show that there was the commencement of inflammatory action in the part; and I have no hesitation in expressing it as my decided conviction, that the addition of a wound of the serous membrane would have sufficed to increase that inflammation to a degree that would have been, in all probability, destructive to life.

Before enumerating the special advantages of Petit's operation, I would say a few words on the subject of the taxis. Its primary object is to return, not so much the intestine, as its contents. The proper mode of doing so is not so much by direct pressure, as by gentle and steady compression of the tumour between the finger and thumb. Direct backward pressure rather tends to defeat our object, by rendering the tumour more tense, and by increasing the angle at the constricted part; whereas compression diminishes this angle, and sometimes enables us to return, first the gaseous, and then the fluid and solid contents of the intestine. It is attention to this fact which renders some men so successful in applying the taxis, and which gives them the power of diagnosing with comparative certainty between a hernia which will require operation and one in which taxis will succeed; habit soon engendering a facility of measuring the tension of the sac, and the power of resistance in the stricture. A prolonged use of the taxis is not desirable. The intestine becomes ecchymosed, and a tendency to subsequent peritonitis is set up. Hence most surgeons are now moderate in their use of the taxis, and urgent for early operation when it fails. Some statistics brought forward by Mr. Hancock on this subject are most apposite:—"Between the years 1834 and 1839, Boyer never operated until he had made prolonged attempts at reduction; and during that period 9 cases were operated on, of which 8 died, and 1 recovered. From 1839 to 1843, he employed the taxis to a much more limited extent: 7 cases were submitted to operation, of which 4 died, and 3 recovered. From 1843 to 1846 he had almost abandoned the use of the taxis; and of 14 cases upon which he operated, 4 died, and 10 recovered. Manee, on the contrary, during the same period, almost always proceeded to operate without employing the taxis; and out of 28 cases operated on, 2 died, and 26 recovered."

If we look into any statistical tables on hernia, we shall find that in not a few cases a few hours' strangulation has resulted in death, while in others it has remained unrelieved for several days without bringing on a fatal termination; nor can all of these cases be explained by the varieties in size or duration of the original rupture. Again, if we consult these tables with a view of comparing the deaths with the means used for procuring relief, we cannot but be struck with the fact that the taxis bears a prominent part among those means. Hence, without wishing to lay undue stress upon it, we are brought to conclude that the simple use of the taxis for any length of time is attended with considerable risk. Mr. Gay's tables in the "Lancet" of November 20, 1852, bring this forcibly before us;

and although not disposed to go the same lengths with him, I cannot but think that the less the intestine is thus compressed, the more favourably will the case turn out.

Now, Petit's operation, and especially Luke's modification of it, is merely the taxis deprived of its danger. By it the disproportion between the strength of the sac and the resisting stricture is removed, and the risk of producing ecchymosis, rupture, or sloughing of the intestine, or general peritonitis, is much diminished, if not wholly done away with; while the requisite incision is very trifling, and is made in sound structures alone. Being immediately over the seat of the stricture, it may even enable us to reduce the hernia in cases where the stricture is in the neck of the sac, by depriving it of external support, or even by allowing us to notch the outer surface of the thickened neck. When this is not sufficient, it forms no impediment to subsequent opening of the sac, and renders it necessary to do so to a very limited extent—from a quarter of an inch to an inch or an inch and a quarter. The practical importance of this will be evidenced by the results of some statistics I collected a few years ago. The other advantages of this operation have been so ably and fully insisted on by Messrs. Key, Luke, and Gay, that a bare enumeration of them will suffice. The operation is simple, and *per se* unattended with danger. It will therefore be submitted to more readily at an early period. It does not wound the peritoneum; it does not expose the intestine to the injurious influence of the air, or of direct handling, than which last there is no more frequent cause of death. It admits the escape of blood, if an artery be wounded, or of pus at a later stage, without implicating the cavity of the peritoneum; and, lastly, where it has been adopted as the rule, the percentage of deaths has fallen 50 per cent.

Table 1.—*Cases in which the sac was opened in the ordinary way, by a free incision over the tumour.*

Authority.	Cases.	Recoveries.	Death.
T. W. King, ...	80	46	34
Read and Peacock, . .	9	5	4
Howship, ...	19	8	11
South, ...	16	10	6
Guy's Hospital, 1841–2,	19	9	10
Textor, ...	56	32	24
Malgaigne, ...	220	87	133
London Hospital, . .	65	43	22
Aumau, ...	545	285	260
	1029	525	504

Or nearly 50 per cent. of deaths.

Table 2.—*Cases in which Petit's operation, or a modification of it, was performed or attempted.*

A.—Cases in which the sac was not opened.

Of 62 femoral,	57 recovered,	and 5 died	= 9	per cent.
„ 17 inguinal,	12 „	5 „	= 29	„
„ 8 umbilical,	6 „	2 „	= 25	„
87	75 recoveries,	12 deaths,	14	per cent.

B.—Cases in which the sac was opened to an extent varying from a quarter of an inch to an inch and a quarter.

Of 18 femoral,	11 recovered,	and 7 died,	= 39	per cent.
„ 34 inguinal,	24 „	10 „	= 30	„
„ 9 umbilical,	2 „	7 „	= 80	„
61	37 recoveries,	24 deaths,	40	per cent.

C.—Results of A and B.

Total cases, 148; recoveries, 112; deaths, 36; or 24½ per cent.

Of these 148 cases, 54 are published in a paper by Mr. Luke in the thirty-first volume of the "Medico-Chirurgical Transactions;" 56 were communicated to me by Mr. Luke from his own register, and 26 from the London Hospital register,—the latter being cases operated on by his colleagues; and 12 are collected from Mr. Gay's Monograph.

I know that a much larger number of cases have been treated on these principles since I collected the above statistics; and that the rule with numbers of eminent surgeons, both in London and elsewhere, is not to open the sac, even in inguinal hernia, until Petit's operation has first been tried. Some few cases have been so treated in Dublin by Mr. Hargrave and myself, and perhaps by some other surgeons. As far as I have heard, these cases, amounting to about a dozen, have been all successful; and the result will encourage me, and I hope many others, to pursue a mode of operation which is so satisfactory.

It remains only to notice some of the objections commonly brought against the non-opening of the sac. These are, first, the danger of reducing sac and contents, when the stricture is in the neck of the sac. Now, if attention is paid to the true mode of taxis, this cannot easily occur. No doubt, if, from ignorance, pressure be made upon the whole body of the sac in the direction of the ring, sac and all may go up; but if compression of the sac be first made, until the contents of the knot of

intestine are felt to pass out of it, and direct pressure towards the ring be deferred until this takes place, such a dangerous mishap cannot occur. The sac may return, while the intestine remains strangulated; but the contents of the intestine cannot pass up until the stricture, wherever situated, be relieved: it must, therefore, be our first object, in applying the taxis, whether before or after division of the ring, to empty the intestine of its feculent contents by a process of compression, and not to attempt to force the intestine back into the abdomen until it has been so emptied; this steady compression will also assist to unload the congested vessels of the bowel, which are an additional impediment to its reduction.

Another objection, and one which deserves to be weighed, is, that the intestine may be in a gangrenous condition, and that we should always inspect it. Now, no doubt, gangrene may have set in in any hernia, however recently strangulated: I have seen it occur in six hours. But does this serious complication usually give no signs of its advent and existence? Have we not generally severe pain, followed by temporary ease, and again by fresh torture, as general peritonitis succeeds perforation? have we not erysipelatous inflammation of the integuments, with lividity and œdema, and even emphysematous crackling? And retaining such rare cases as cannot be thus recognized, and putting against them the diminished mortality of Petit's operation, I say we should not be justified in running a great and certain risk for the sake of avoiding another of no greater gravity, and of much less frequency. Short of actual gangrene, the intestine will recover any degree of congestion, once constriction is removed; and there is no doubt that the additional wound of the peritoneum will not increase the chances of recovery in doubtful cases. It may be retorted, and with some superficial show of reason, that the second case, in the present paper, is evidence of a difficulty in recognizing the existence of gangrene of the intestine; but he will have read it to very little purpose who draws such a conclusion; it really shows the difficulties which may attend a recognition of strangulation; but suppose that, instead of being led astray by a resemblance to orchitis, we had come to the conclusion that there was a knuckle of intestine still strangulated, all the symptoms of gangrene from first to last could have been plainly read, and we cannot but blame ourselves for not giving them their due weight. On the other hand, this case is an example of those rare occasions in which division of any external constriction would have been insufficient, and in which a real necessity would have existed for opening the sac, had we pro-

ceeded to operation; the constricting band was within the sac; no amount of notching external to it would have relieved the constriction; and an incision from end to end of the scrotum would have been an operation which would, almost to a certainty, have been fatal. The great lesson to be derived from it and the first case is the manifold mischief which ill-fitting trusses may produce: in the one a deep pelvic abscess, in the other an hour-glass contraction of the sac, with subsequent strangulation at this point, resulted, and in both cases after a long interval of time. Another objection which I have heard made to Petit's operation is, that you may return into the peritoneal cavity a quantity of serous fluid, or even flakes of lymph, or an inflamed and roughened mass of intestine, which, in its movements through the neighbouring viscera, may inflame their peritoneal covering: to this I have only to answer, that every surgeon makes an effort to reduce a hernia by taxis, without thinking it necessary to take such a contingency into account, and that he is wont to congratulate himself if he succeed without an operation. The fact of his making the reduction more easy by a trifling superficial wound cannot increase this danger, if it have any real existence. That such products of inflammation are highly obnoxious, when decomposed by the admission of air, is true enough; but, deprived of that excitant of putrefaction, they are not so irritating.

In conclusion, I beg to urge upon my Dublin and country brethren this mode of operating for hernia, which I have proved by plain figures to be, in a most striking manner, superior in its results to the ordinary operation. It has the sanction of the highest names. Sir Astley Cooper frequently operated in this manner in old herniæ. Petit, Mr. Luke, Gay, Aston-Key, Mr. Paget, and many others, have given it their approval, and pursue it as a rule. It is in strict accordance with the law of modern surgery, viz.:—never to use a knife to an unnecessary extent. I do not ask that it should be invariably or indiscriminately applied; but I do demand, in the interests of science and of suffering humanity, that the extra-peritoneal operation for hernia should be the rule, and the opening of the peritoneal cavity the exception.

Art. XIX.—*History of a Case of Paraplegia depending on a Tumour in the Spinal Cord, with Observations.* By Benjamin George M'Dowel, A. B., M. D., T. C. D.; Professor of Anatomy and Physiology in the University of Dublin; Physician to the Richmond, Whitworth, and Hardwicke Hospitals; Fellow and Member of Council of the Royal College of Surgeons in Ireland, &c., &c.

Not long since, a man, labouring under paralysis of spinal origin, was the subject of careful clinical observation in one of my wards in the Whitworth Hospital; and as the lesion discovered after death is one of much rarity, whilst the resulting symptoms are illustrative of certain modern physiological views, I have thought that a brief recital of the case may not be devoid of interest.

John Neal, aged 24, a tin-plate worker, was admitted into the Whitworth Hospital, under the care of Dr. M'Dowel, Jan. 31, 1861. He was a thin, delicate-looking man, and presented palpable signs of having suffered severely from syphilis; his skin bore the marks of phagedenic ulceration; the right eye had been the seat of severe inflammation, the pupil was irregular and contracted, and vision impaired; whilst the left testis was enlarged and indurated.

On Admission—He complained of a sensation of constriction round his waist, of a difficulty in standing upright, and of general debility. A week afterwards, he began to experience a difficulty in passing water—the urine was found to be alkaline and fetid.

February 12th. He walked feebly, and with a staggering gait—had a rigor last night.

16th. Paraplegia is almost completely developed; patient is unable to stand, and the sensibility of the lower extremities is somewhat impaired. He has frequent desire to pass water. The urine is ammoniacal.

18th. To-day it was found that there was complete loss of all voluntary motion in the lower extremities; excito-motory phenomena badly developed, sensibility much impaired; bowels costive; inability to pass water by voluntary efforts. A catheter was passed, and some fetid ammoniacal urine was drawn off. No stricture of the urethra existed to which, as a source of reflex irritation, the paralysis might be referred.

20th. To-day constitutional symptoms of an alarming character were developed, resembling those which follow the infliction of a severe injury. There was a cold perspiration on the surface; the pulse was weak and intermittent, and there

was frequent vomiting. These symptoms were believed to denote the constitutional irritation produced by the *sudden* supervention of softening of a more or less considerable portion of the spinal cord. For two or three days death seemed to be impending from this cause; but the patient gradually rallied, the vomiting ceased, the depression of the heart's action passed away. Death was to be brought about by a slower and more painful cause.

On the 24th February, the patient had rallied from this state of shock or collapse; but complete loss of sensation and of voluntary motion existed in the lower half of the body, and even reflex muscular movements were with difficulty excited; a tendency to sloughing of the integuments, when exposed to pressure, was to-day observed; and although every means possible were resorted to, to avert so unfortunate a complication, all was in vain, and the soft parts gave way with even unwonted rapidity.

From the 1st of March to the 15th, whilst terrible bed-sores were forming, a change was observed in the paralytic phenomena; some degree of voluntary power was regained in the left foot and leg; the foot could be flexed and extended, and the leg drawn up in the bed to a certain extent. No such improvement occurred in the right lower extremity; but it was observed, and verified by repeated observations, that the reflex muscular movements regained much of their normal activity in the right leg and foot, whilst there was a partial recovery of sensibility in both lower extremities. Whilst, therefore, sensibility was *equally impaired* in both lower limbs, these extremities were contrasted in the degree of voluntary and of reflected muscular motion which they possessed. In the *right* lower extremity, *voluntary motions were extinct, and reflex motions capable of being excited:* in the *left* lower extremity, *the reflex motions were extinct, but voluntary motions to a certain extent were capable of being performed.*

On the 15th of March, the sloughing of the soft parts had reached a shocking extent; branches of the gluteal artery yielded florid blood at each dressing, and a large portion of the left sciatic nerve was completely exposed. The sufferings of the patient were now very severe; yet, in spite of the profuse discharge, of occasional bleeding, and consequent hectic, he lingered until the 2nd of April, before he was released from his sufferings by death. He was then extremely emaciated, and the ravages made by the sloughs were such, that not only was the sacrum bared, and partly softened, but the small rotator muscles of the thigh on one side, and the gluteal nerve on the

other side, and even the capsular ligament of the hip-joint were plainly exposed to view.

Autopsy.—Sixteen hours after death, the spinal cord was carefully removed; its membranes were perfectly healthy, and on the surface of the cord itself nothing unusual was observed; to the touch its dorsal portion was perceptibly diminished in consistence. A vertical section of the cord, however, disclosed more remarkable alterations. In the central part of its dorsal portion, but extending considerably to the right of the middle line, a tumour of firm consistence and yellowish colour was exposed: it was perfectly globular, smooth both on the surface and in section, of a fibro-gelatinous consistence, and of the size of a large pea; the cord above and below this tumour was softened, and in parts abnormally vascular. In the centre of one area of vascularity a small yellowish spot was observed, a miniature, as it were, of the larger deposit. No trace of tubercle could be found either in the lungs or liver, on the most careful examination. The liver was slightly cirrhosed; the spleen was large and soft. The brain was perfectly healthy. The bladder was thickened and contracted, and its mucous membrane was of a dark slate colour.

Observations.—In analysing the phenomena presented by the case now detailed, I shall limit myself to a few remarks on the nature of the tumour, the nature of the paralysis, and the unusual degree of sloughing of the soft parts which ensued.

a. Nature of the Tumour.—I confess I felt great difficulty in determining what the nature of the morbid growth in the spinal cord might have been. Its anatomical characters were not those of tubercle; and the absence of any tubercular deposit in other organs, especially in the lungs, rendered such a view extremely improbable. It is to be regretted that the diseased testis had not been removed and examined; for I cannot help thinking that a section of the testis would have exhibited a deposit extremely similar to that in the spinal cord. But there is more than vague theory in support of this view; for the syphilitic history of the case was such, that the spinal affection seemed to supervene as directly on syphilis as any of the other more legitimate secondary symptoms; that history was briefly the following:—Eighteen months before his present illness, the patient contracted syphilis; no treatment was sought for, and the primary sore healed of itself, but sore throat and cutaneous ulceration of much severity and great extent followed in a few months; at a later period, iritis and sarcocele were the results, and for these he had been taking iodide of potassium for some time before the paraplegic symptoms appeared. In reviewing

the order of symptoms here detailed, the inference seems to me to follow most naturally, that the deposit in the spinal cord was the last result in the chain of morbid sequences which have been detailed.

More extended observation may supply additional evidence as to whether the views now advanced are tenable or not; but I will now only further observe, that the section of the tumour in the medulla spinalis resembled no other deposit with which I am acquainted, so much as the yellow amorphous "tubercle" (as it is usually termed), which constitutes the chief bulk of the enlargement of the testis in one form of syphilitic sarcocele[a].

b. Nature and peculiarities of the Paralysis.—The position of the morbid deposit, occupying chiefly the right side of the upper part of the central mass of the medulla spinalis, explains in some degree the difference observed in the amount of paralysis in the lower limbs. As the channels by which volition is conveyed from the brain to the extremities decussate at the lower part of the medulla oblongata, a tumour pressing into the right half of the cord cuts off from the right lower extremity the power of voluntary motion; accordingly, in the case detailed, the right lower extremity was completely paralysed; the left partially so. The reflex motor phenomena, on the contrary, were found to be better developed in the right leg and foot; this also agrees with the results of observations, which go to prove that these special phenomena are most fully developed when the influence of the brain is completely dissevered from the spinal cord. The tumour in this case intercepted the nervous communication between the brain and the right half of the medulla spinalis; and the reflex muscular movements, as physiological deductions indicated, were in full development in the right lower extremity, whilst they were extinct in the left leg and foot.

Tactile sensibility was diminished to an equal extent in the cutaneous surface of both lower limbs. Brown-Séquard has satisfactorily proved that the channels by which sensitive impressions are conveyed along the spinal cord (central grey neurine), decussate freely along its entire length; an interruption to sensitive impressions, therefore, in one half of the medulla spinalis, obliterates sensation in opposite parts of the body below the point of interruption.

[a] For a very accurate delineation of this form of deposit in the testis, I would refer to a very excellent monograph on syphilitic sarcocele by my friend and colleague, Mr. Hamilton, the first of a long-promised series.

The case under consideration does not in any way affect the accuracy of this hypothesis; for in it the softening of the nervous matter of the cord, consequent on the development of the tumour, produced a diminution of sensibility, which, for obvious reasons, was not confined to one side, but was distributed equally over both lower extremities.

c. Sloughing of the soft parts.—It may seem unnecessary to advert to this, which is so common an occurrence in lesions of the spinal cord, whether the result of accident or of disease. The rapidity and extent, however, of the sloughing process in this case were very unusual, for which an explanation may be offered, based on well-ascertained physiological principles. The sloughing of the soft parts, which so constantly ensues on injuries of the spinal cord, or on diseases which affect its consistence, is not merely the result of prolonged pressure; for sloughs do not follow, when, from other causes, patients are confined for weeks, or perhaps months, to bed; whilst in some cases of fracture of the spine, they occur in a very short time after the injury, and in parts not subjected to much pressure. Neither will the loss of nervous influence in such instances alone sufficiently explain their occurrence; for sloughing was never observed to follow even the complete section of the spinal cord in animals. A third cause has been assigned by Brown-Séquard, which the results of observation tend to establish, and which the present case fully illustrates; it is this, that sloughing of the soft parts, under the circumstances alluded to, is produced by a "morbid excitation" of the cord, rather than by a loss of nervous action, i. e., that an irritation, rather than a paralysis, gives rise to it; or, as this author elsewhere says, "it is an evident result of a disturbance of nutrition due to an *irritation* of the nerves of blood-vessels." If such be the case, sloughing ought to be more readily and more extensively produced by a tumour in the spinal cord, acting directly as a cause of excitation and irritation, than by an injury which merely interrupts more or less completely the continuity of the cord. Now, I can state that in no case of fracture of the spine, or of ramollissement of the spinal cord, which has come under my observation, and I have seen very many examples of both, have I ever seen so rapid or so fearful disorganization, as in the case which has suggested these brief observations.

Art. XX.—*Urinary Diseases in Infancy and Childhood.* 1. *Uric and Oxalic Acid Diatheses.* By D. Lloyd Roberts, M. D., &c.; on the Medical Staff of St. Mary's Hospital for the Diseases of Women and Children, Manchester; Fellow and Honorary Local Secretary of the Obstetrical Society of London, &c., &c.

Of all the diseases that humanity can be afflicted with, none are more painful, more prostrating, and more fatal, than diseases of the urinary organs; and when they occur in children of tender years, with delicate organizations, the symptoms appear in an aggravated form. The diagnosis is also incumbered by a difficulty common to all infantile diseases, viz., the inability of the patient to communicate to the medical attendant the nature of his sufferings, which the latter can only infer from the posture, the cry, the expression of the countenance, whether pinched or haggard, anxious or placid, &c. It is in these cases that the practical physician has to bring to bear all his tact and ingenuity, and all the knowledge afforded by the advanced state of pathological physiology, chemistry, the microscope, and the test-tube. It is here also that we have to acknowledge the energy, perseverance, and great talents of Prout, Bright, and Golding Bird, who will be ever remembered in connexion with this subject, as "men who have not lived in vain;" men who laboured at a time when urinary pathology and organic chemistry were in their infancy; who have left deep and enduring traces of their footsteps behind them in their writings, which will be remembered with gratitude and respect by all scientific physicians.

These cases acquire a double interest when we consider the great number of children who suffer from stone in the bladder and kidney, and ultimately become subjects for the dangerous operation of lithotomy.

Having for some time directed my attention to the subject of urinary diseases in children, I availed myself of the wide field afforded me by the great number who were brought to St. Mary's Hospital for advice. While thus engaged, I was forcibly struck with the large proportion who were presented in a languishing and dying state, not from any ascertainable organic disease, and whose condition I was unable to attribute to any other cause than defective nutrition and mal-assimilation. The equilibrium between waste and repair seemed to be destroyed, and the elaboration of the ingesta was not perfected. My inability to account satisfactorily for the appearances presented, led me to enter upon a diligent examination

of the urine. I need scarcely say, that in a great number of cases I detected, in that secretion, an abnormal quantity of either uric, oxalic, or phosphoric acids, combined with various bases.

Postponing, for the present, the consideration of the phosphoric acid diathesis, I propose to confine the following remarks to the uric and oxalic acid diatheses. With regard to the former, I shall not enter upon the description of the sources of uric acid, as I believe it to be an abnormal ingredient in the urine. In support of the correctness of this view, I shall quote the Rev. Samuel Haughton, one of the most recent and best writers on the chemistry of the urine. That gentleman, in an excellent and elaborate paper in the "Dublin Quarterly Journal" for August, 1859, and August, 1860, found that the mean quantity of uric acid passed by day by beef-eaters was 4·55 grains, and the mean daily quantity passed by vegetarians as 1·48. The rev. gentleman proceeds to say, referring to these results :—

"They are so different from those usually received, that they would require explanation, which I should offer, were it not that I believe that both uric and hippuric acids are accidental in healthy urine, though the former is always found in small quantity; the latter, hippuric acid, occurred to me only once, though it was carefully sought in each case. When I say that uric acid is accidental in healthy urine, I do not mean to say that it occurs, like chlorine and sulphuric acid, the quantity of which depends directly on the chloride of sodium and sulphate of alumina and potash consumed with the food; but I do mean that no uric acid whatever should occur in the urine of a man in perfect health, but that all the nitrogen of the urine should pass off in the form of urea, a more highly oxidated product than uric acid." Again: "When we consider that the quantity of urea passed by the persons considered in these Tables (referring to the results above alluded to), per day, is 576 grains, and 394 grains, respectively, we may fairly consider the uric acid discharged simply in the light of a minute fraction of nitrogen which has escaped oxidation, and as a matter rather of chemical than physiological interest."

However, whatever truth there may be in this view, pathologists are generally agreed that the deposition of an excess of uric acid in the urine is the result, in the great majority of instances, of the presence of a free acid in the system. We cannot wonder, then, that deposits of uric acid should be so frequent among children, when we regard the infant living

on a highly nitrogenized and peculiarly animal food, which has a powerful tendency to acescency; this being precisely the condition requisite to the precipitation of uric acid. Fortunate if this precipitation take place without the body, and not in the pelvis of the kidney, as in the following case:—

Emma G——, aged twenty-one months, was admitted under my care on July 31, 1861. *History.*—Has been dry-nursed, her mother having been employed as a wet-nurse in a gentleman's family. Has never been well since she was two months old; suffered a great deal during dentition, particularly while cutting the last tooth; has very frequently been convulsed of late; was very much so two weeks ago. A considerable quantity of gravel has been noticed in the urine for some time, and particularly during the last fortnight. Her water is constantly trickling from her. Has been subject to fits, at intervals of one month, for the last two or three months. She could walk when she was eleven months old; but has gradually become thin, although her appetite has been moderately good. Her diet included anything and everything that was going—tea, vegetables, meat, and occasionally beer. Has suffered from deposits in the urine since birth. Her mother has brought two small calculi, about the size of grains of hemp-seed, which proved, on chemical examination, to be pure uric acid. A specimen of the urine was examined under the microscope, and it was found loaded with rhombic crystals of uric acid and urates.

Present State.—The child is now suffering from a severe convulsive fit, is emaciated, has a Hippocratic expression of countenance, as if she had suffered severe inward pain. The eyes are sunk and fixed, cheeks flushed; tongue white, furred, and dry; pulse quick, small—140. Urine trickles from her; and in consequence of the irritation it produces, the labia, perineum, and buttocks are excoriated. On examining the abdomen by palpation, the colon was found to be very much distended with fæcal matter, which appeared hard. She was ordered three grains of calomel and six of the compound powder of scammony in a powder.

The following day the convulsions had entirely ceased. The child, however, remained unconscious, though she would open her mouth, and swallow instinctively fluids given her by a spoon. The bowels had been freely opened by the powder, aided by an enema of warm water. The stools were lumpy and hard. She was ordered a mixture consisting of bicarbonate of potass, 48 grains; syrup, 3 drachms; tincture of hyoscyamus, 48 minims; and camphor mixture, sufficient to

make it up to two ounces, of which she was to take a teaspoonful every fourth hour.

She continued to progress rapidly from this date to August 8th, when the convulsions suddenly returned, and she parted with another small calculus. She was visited by my friend, Mr. Runcorn, and myself; a sound was introduced into the bladder, but no calculus was found. The convulsions continued with unabated severity; she appeared to be affected with nephritic colic, and finally sank on August 14th, 1861.

August 15th.—A *post-mortem* examination was made by my friend Mr. Ormerod, and myself; and the following were the appearances presented:—

Kidneys large, and much congested; the cortex peeled off easily. In the superior infundibulum of the left kidney, which was one-third larger than the right, a small calculus was found, about the size of a vetch. The mucous membrane of the bladder was very much injected. Here and there were large patches of a dark purple colour, caused by extravasated blood. The muscular coat appeared hypertrophied. The other abdominal viscera were healthy, with the exception of the stomach and bowels, the mucous membrane of which was very much softened.

The oxalic acid diathesis is my next subject for consideration. The question of the generation and development of oxalic acid in the urine is one on which physiologists are very much divided, and which may still be considered as "sub judice."

Whether the acid is developed in the blood prior to its excretion by the kidney, or in the renal apparatus, or whether it is not formed until the urine has been discharged, and this for some time, I will not venture to determine, though well-marked cases of oxaluria in children have come under my care, where the acid was, beyond doubt, existent in the urine at the time the latter was voided. However, whatever the mode or the period of its development, it appears always to act as a poison on the nervous and vascular systems; and if it persist, and resist special treatment, it proceeds to the development of one of the most painful and distressing of renal or urinary calculi. My own observations enable me to assert that oxalic acid is very common in the urine of children; and although the dangers of a calculus may not be apprehended, still the poisonous effects of this substance on the digestive organs, the heart, and the nervous system, are no less to be dreaded. Children suffering under oxaluria are distinguished by their depressed and melancholy appearance, together with the increased

specific gravity, sweet-briar odour, and strongly acid reaction of the urine. These symptoms are well illustrated in the following case, which is one of the latest that has come under my notice:—

John D—, aged four years, was admitted on August 29, 1861, under the care of my esteemed colleague, Mr. Heslop, and, during his temporary absence, passed under my care. The mother states that his water has been at times like milk since he was twelve months old; that he has been accustomed to micturate very often, but has not passed much at a time. He was suckled until he was twelve months old; but was also fed on bread and milk, and occasionally on potatoes, meat, bacon, &c. He was very fond of beer, a taste which he was allowed to gratify when his father had his daily beer to dinner or supper. He has been accustomed to wet the bed; his bowels are generally costive; he has not been subject to worms.

Present state.—The child, from having been stout and moderately healthy, has become emaciated and weak; his digestive organs are impaired, as is evinced by frequent vomiting. He is thirsty, but not feverish, and his tongue is furred. He is almost constantly passing urine, which deposits a large quantity of mucus and urates. No calculus could be found. A specimen of his urine when examined smelled strongly of sweet-briar, and was found loaded with octohedra of oxalate of lime. It contained, also, small quantities of uric acid and urate of ammonia.

The treatment in the first instance consisted in the administration of salines, with calomel and rhubarb to rectify the bowels; subsequently, two minims of the tincture of the sesquichloride of iron three times a day, which I have no doubt had great effect in improving his digestive powers, and his urinary secretion also. I ordered him three minims of dilute nitro-muriatic acid three times a day.

October 3. A specimen of his urine was brought this morning. The odour of sweet-briar was very perceptible, and there was a pretty free deposit of mucus. The specific gravity was 1025, a high degree for a child. On being subjected to the microscope, amorphous urate of ammonia and octohedral crystals of oxalate of lime were still visible, both, however, much diminished in quantity since the last examination. Though still weak, and very pale, the general health of the child seemed to be, on the whole, improving, and his appetite was better. The bowels had been kept pretty regular by the powders.

We likewise find occasionally, associated with deposits of oxalate of lime, large "hedge-hog" crystals of urate of soda;

and if these continue to be deposited, the sufferings of the little patients are intense; for, in addition to pain in the back, along the ureters, and over the pubis, there is a frequent desire to void urine; and the irritation of the genito-urinary mucous membrane produced by the highly acid condition of the urine, causes epithelial desquamation, and consequent abrasion. The already irritated surface of the membrane is, moreover, subjected to the mechanical irritation of the crystals themselves.

The following case is offered in illustration of the foregoing remarks:—

James H., aged two years and nine months, was admitted under my care on June 21, 1861. He was suffering from wasting debility, occasional diarrhœa, vomiting of very acid matter, and a frequent desire to void the urine, which he passes a few drops at a time. The child appeared pale, with a somewhat pasty look, and exhibited a degree of emaciation pitiful to look upon. His bowels were constipated, days sometimes intervening without an evacuation; when he has one, it is lumpy, and very offensive. The tongue is covered with a whitish fur, with prominent red spots scattered over it. At times the child screams with pain. A powder, consisting of three grains of calomel and seven of compound powder of scammony, was ordered at bed-time.

The mother was directed to collect all the urine she could, and bring it the following day for examination. The specimen she brought was highly acid, of a reddish colour, sp. gravity 1017, and deposited copious urates. A drop of that portion containing the sediment, examined microscopically, showed abundant "hedge-hog masses[a]" of urate of soda, lozenge-shaped crystals of uric acid, and octohedra of oxalate of lime, together with a few blood-discs. The child's diet was restricted to tapioca jelly, chicken-broth, and barley-water, and the following medicine was ordered: bicarbonate of potash, one drachm; citric acid, two scruples; syrup of orange-peel, four drachms; to be made into a three-ounce mixture with distilled water, of which he was to take a teaspoonful every third hour.

This treatment was persevered in until all traces of urate of soda had disappeared from the urine. Tincture of iron and cod liver oil were then directed to be administered; and he was finally discharged on August 23, 1861.

By far the most common cause of urinary disease is hereditary predisposition. It is a fact well known that there

[a] See Thudicum's erudite and practical Treatise on the Pathology of the Urine, p. 102. London: Churchill. 1858.

exists in certain families an hereditary proclivity to diseases of the urinary organs. This ought to make us alive to the first indications of these disorders, and to avoid all exciting causes which are known to be sources of irritation. Gout is a well-known hereditary disease; but the seeds seldom germinate until some exciting cause is in operation, such as vicissitudes of temperature, checked perspiratory action of skin, damp, wet, indolence, good eating and drinking. Indeed, the offspring of gouty people are peculiarly predisposed to urinary disease, which may be propagated by either parent. The opinion of a great authority on this subject is so apposite, that I cannot refrain from reproducing it here:—

"From the great tendency to deposit lithic acid by children of gouty and dyspeptic parents, and particularly by the children of those who suffer from urinary diseases in general, from the great risk there is also at this early period of life of the formation of calculus in the bladder, it becomes a duty highly incumbent on parents to watch the condition of their children's urine. They should constantly bear in mind that by a regulated diet, &c., the formation of a stone in the bladder may very probably be prevented; while this fearful malady will almost as certainly be the result of inattention. I have repeatedly seen instances in which children strongly disposed to these affections have been sent to school, and otherwise neglected, and who have suffered in consequence from stone in the bladder. Moreover, such children should never be considered as secure till after the age of puberty, when, as we have stated, the tendency to this affection is much diminished, or at least becomes less dangerous, and when of course they become old enough to attend to themselves. In the management of children with these affections, attention to diet is, in the first place, of chief importance"[a].

Next to hereditary transmission, the most fertile cause of urinary diseases is improper food and overfeeding. It is difficult to say which of these two causes produces the most injurious effects upon the organism. Coarse food, and food difficult of digestion, are well known to produce severe functional disturbance of the digestive organs; the proper digestion of food is impaired at its primary stage of assimilation; the chyme which is thrown into the duodenum is crude, and diminished in nutritive value; the action of the bile and pancreatic juice upon this imperfectly digested chyme is not sufficient to rectify the primary error; the small intestines, by their own

[a] See Prout, Stomach and Renal Diseases, Fourth Edition, p. 217. 1843.

peristaltic action, thus convey an irritant which produces diarrhœa, or constipation, according to the degree of irritation produced; the function of selection on the part of the lacteals becomes in turn impaired, and the imperfectly elaborated chyle is conveyed into the blood, and slowly, if at all, transformed into tissue. Hence a large quantity of unassimilated materials are left to be eliminated by the kidneys, skin, liver, and other emunctories. Hence also arises an increase in the urine of its natural nitrogenized constant, urea, in addition to uric acid, urates of ammonia, soda, and oxalates. From the preceding observations it will be easily conceived how, in the first place, improperly digested food may be a cause of urinary deposits, developing in the system a morbid poison, which in its turn reacts on the heart, nervous system, and chylo-poietic viscera; and under no circumstances is this developed in so high a degree as in those cases where oxalic acid is generated, producing that state to which Dr. Golding Bird gave the name of "oxaluria." I have seen children depositing oxalic acid in the urine, where the emaciation has been so extremely rapid, that the child has been reduced to a mere skeleton in a week or two, and where improvement was manifested precisely in proportion as the acid disappeared from the urine.

Having disposed of the question of improper food, it remains to consider that of over-feeding. Food given in quantity beyond that which is necessary for the proper nutrition of the body acts as an irritant, and, as such, produces precisely the train of symptoms which I have already ascribed to the irritation produced by improper feeding. Therefore the remarks which I have already made on the latter subject are equally applicable to the former, and it becomes unnecessary for me to enlarge further upon it. How improper and injurious is it, then, to give coarse food, and food difficult of digestion, in infancy and childhood! At no other period of life is it so important to attend to the digestive organs; and yet how often do we see the poor helpless child made the victim of ignorance or carelessness! and I know of no subject on which there is so much ignorance as the feeding of children, especially among the poor.

During the early period of childhood, the organs of digestion and assimilation are taxed to the utmost in ministering to the growth of the body. Notwithstanding their feeble powers of assimilation, infants, if they are kept to the breast, and allowed nothing but Nature's food, thrive and grow fat. It too often happens, however, that officious and ignorant persons step in; and by recommending bread, or some advertised "fa-

rina," instead of the nutriment which Nature has provided, impair the digestive powers of the child, and lay the foundation for urinary disease.

The large amount of alum contained in shop bread precludes this staple article of food from the diet-roll of infancy. I have traced deposits in the urine merely to the large quantity of alum in the bread which the family were in the habit of using; and where there was any hereditary tendency, it has been a fertile exciting cause.

Irritation of the gastro and uro-poietic systems is frequently owing to the vicious practice of parents giving their children intoxicating liquors. I have frequently elicited from parents the fact, that they were in the habit of giving their children liberal potations of beer, porter, and even gin. Another cause —and the last which I shall mention—of urinary deposits in children, arises from impeded functions of the skin, occasioned often by deficient clothing. That this cause should operate largely among the ragged and half nude children of the poorer classes, will occasion no surprise. But the children of the more wealthy are scarcely less exempt from its influence, owing to the prevailing custom of allowing the lower half of the body to remain uncovered. The surface is thus more liable to become chilled, and the free excretion of the complex perspiratory fluid is prevented; a larger amount of work is thrown upon the kidney, as an eliminator of the effete materials, the product of the destructive oxidation and metamorphosis of the various tissues.

We are all familiar with the compensatory action which exists between the skin and the kidneys; the latter usually making up by an increased secretion of urine for any suppressed action of the former; and the skin, again, exhibiting its vicarious power of secretion by the elimination of urea, uric acid, and urates, when these substances are debarred from their natural outlets from the system by disorganization of the kidneys.

Urinary deposits are so commonly due to the existence of exciting causes, internal or external, which are almost always under our control, that the removal and avoidance of these causes must form the most powerful means, and indeed constitute the main feature, in our treatment of these formidable complaints. As these exciting causes are mostly common to *all* urinary diseases, the account of the treatment may be greatly simplified, and much repetition avoided, by reserving them for separate consideration after the description of each individual disease, and its appropriate medicinal treatment, shall have been completed. I shall therefore restrict my remarks,

at present, to the treatment of the two diatheses which I have been considering,—leaving, for the reason above stated, the general hygienic and dietetic treatment of urinary diseases in infancy and childhood till after the completion of my next paper, the subject of which will be phosphatic urine, and albuminous urine, and dropsy, after scarlet fever.

The only remedies in the treatment of the uric acid diathesis that have been successful in the hands of practitioners, are the alkaline carbonates, either of soda or potass; the former has fallen into comparative disuse. They both act beneficially in two ways: first, in correcting that acidity of the *primæ viæ* which, I have said, is so fertile a source of the deposition of urates; and, secondly, by acting as a solvent of the uric acid. I generally prescribe potass in the form of mixture partially neutralized with citric acid, allowing an excess of the potass, adding a little tincture of hyoscyamus rather for the sake of its soothing power than any direct therapeutic effect. As there is often thirst, although there be no fever, the child should be allowed a plentiful supply of barley-water, as experience has proved that the potass is very much aided in its action by being freely diluted, especially where a calculus has already been formed in the kidney; and I feel convinced that, in the case of Emma G——, if the treatment could have been persevered in, and had not been interrupted by the convulsions which caused the death of the child, the potass exhibited would, by its solvent action on the renal calculus, have gradually so far reduced its size, as to admit of its expulsion through the ureter, and the case might have had a happy termination. Benzoic acid, as first recommended by Mr. Alexander Ure, seems to limit the deposition of uric acid, and it has been found a very valuable remedy in extreme cases. The most efficient mode of exhibiting it appears to be in the form of benzoate of ammonia.

The liver is often inactive, and the bowels sluggish and obstinate; and there is a good deal of colonic accumulation; a decided mercurial is here generally very beneficial.

Nitro-hydrochloric acid has long and justly been a favourite remedy in the treatment of the oxalic acid diathesis; and it is to Dr. Golding Bird that the profession is indebted for the introduction of this powerful remedy in oxaluria. It is always advisable that its exhibition should be continued for some time after the entire disappearance of the sediment from the urine.

In conclusion: from the prostration and emaciation which generally follow urinary diseases, owing to their depressing effect on the nervous and vascular systems, the exhibition of

tonics is strongly indicated. Of these, iron, alone or in combination, is by far the best. I have found the tincture of the ammonio-chloride an excellent ferruginous tonic in these cases; and when given along with the extract of licorice, in water, it is taken with avidity by children of all ages. By far the most efficacious preparation, however, is the fer réduit given with a little powdered sugar after meals. Thus administered, it does not disagree with the stomach, and I have found that its exhibition can be maintained for a longer period than that of any other ferruginous tonic.

Art. XXI.—*Observations on Disease of the Aortic Valves, producing both Constriction of the Aortic Orifice, and Regurgitation through it into the Left Ventricle, accompanied with Abnormal Enlargement of the two Internal Mammary Arteries, and Atrophy of the Abdominal Aorta and its Iliac Branches.* By John H. Power, M.D., F.R.C.S.I.; Professor of Surgery in the Royal College of Surgeons; Surgeon to the City of Dublin Hospital, &c.

Since the publication of the admirable and original paper of Dr. Corrigan, "On Permanent Patency of the Mouth of the Aorta, or Inadequacy of the Aortic Valves"[a], the profession has enjoyed the advantages which must necessarily result from the truly practical aud highly valuable facts and observations which are contained in that communication. Dr. Stokes observes, in his work on "Diseases of the Heart and Aorta," "we owe the diagnosis of this disease to Dr. Corrigan"[b].

In that communication, Dr. Corrigan remarks: "The pathological essence of the disease consists in inefficiency of the valvular apparatus at the mouth of the aorta, in consequence of which the blood sent into the aorta regurgitates into the ventricle." In speaking of the physical and stethoscopic signs which indicate this disease, he remarks that they "may be referred to the three following indications:—1st, *Visible pulsation* of the arteries of the head and superior extremities. 2nd, *Bruit de soufflet* in the ascending aorta, in the carotid, and in the subclavians. 3rd, *Bruit de soufflet* and *fremissement*, or a peculiar rushing thrill felt by the finger in the carotids and subclavians;" both the *bruit* and the *fremissement* "accompanying" "each diastole of these vessels." Again, "This *bruit de*

[a] Edinburgh Medical and Surgical Journal, vol. xxxvii., p. 225.
[b] Page 136.

soufflet is synchronous with the visible pulsation, with the diastole of the arteries."

Again, the same author remarks: "In those cases in which the deficiency of the valves is *considerable*, allowing a *full* stream of blood to rush *back into the ventricle*, there is heard in the aorta a *double bruit;* the first accompanying the *diastole* of the artery, the second immediately succeeding; and in listening to the two sounds constituting this double *bruit de soufflet*, the impression made distinctly on the ear is, that the first sound is from a rushing of blood up the aorta, the second from a rushing of it back into the ventricle"[a]. It will be observed that the author distinctly alludes to the second or *regurgitant bruit* as existing in those cases in which the *deficiency of the valves is considerable.* He makes no allusion to the possible case where the *deficiency may be inconsiderable.* It is to such a condition I would wish at present to direct the attention of the reader. Such a condition of the aortic valves will, I believe, be found to exist. I believe it can be shown that in certain diseased states these valves will be found to perform their functions, although imperfectly; that is, admitting of a *comparatively small* amount of regurgitation of the blood into the left ventricle, not through any aperture existing in one or more of these valves, but in consequence of their surfaces and edges not meeting in the centre of the area of the aortic orifice with sufficient accuracy to render the valvular apparatus complete. I believe, also, that it *is in such cases the second bruit de soufflet may be absent.*

Dr Hope observes: "When there is regurgitation through the permanently open aortic valves, a murmur accompanies the second sound," &c.[b] The learned author lays it down as a rule that a second murmur accompanies the second sound in the permanently open condition of the aortic valves. He particularizes no exception. Dr. Bellingham remarks: "When any of the abnormal conditions already mentioned are present, by which the closure of the semilunar valves of the aorta is prevented, a murmur will be audible at the period of the ventricular diastole and *second sound* of the heart"[c].

The rule is stated with equal accuracy by other observers, but no exception is alluded to by them.

The observations of Dr. Stokes, which appear to me to bear very closely upon this point, are, in my opinion, particularly deserving of attention in this place. He remarks: "If we

[a] *Op. cit.*, p. 225, &c.
[b] On Diseases of the Heart, &c., p. 384.
[c] On Diseases of the Heart, p. 382.

consider the physical signs of this disease, which embrace not only the evidence of regurgitation through a diseased orifice, but of those of dilatation and hypertrophy of the left ventricle, we find that the diagnostics given by Dr. Corrigan apply essentially to the disease when, as it were, it is at its maturity; having on the one hand passed its first stage, and on the other not yet arrived at the period of depression of the action of the heart. At both these periods, in fact, the completeness of the signs may be found wanting. Thus, in the first stage we may have the throbbing pulsation of the innominata, and of the carotid and subclavian arteries, with a systolic murmur propagated into these vessels, *yet without the second or regurgitant murmur*"[a].

During the summer of the present year it fell to my lot to be in attendance upon a poor lad for the last few days of his life, who, as the details of the history of his case will show, had for some time previously laboured under disease of the aortic valves.

On the 8th of June, 1861, I was requested to visit a lad, James Lang, aged seventeen years, in the employment of Mr. Fannin, 41, Grafton-st. When I saw him, he was lying in a back-office on a temporary stretcher, in a semi-comatose sleep: his face was flushed, countenance livid; the veins of the head and face were greatly congested; the heart was palpitating violently, and with increased rapidity; and the pulsations of the arteries of the head and neck were unusually distinct; respiration laboured, and accompanied with stertor. Dr. Sawyer had seen him before my visit, and had ordered his head to be shaved and blistered, and a blister to be applied over the region of the heart. When I saw him, these remedies, so judiciously applied, had aroused him to a state of comparative consciousness. I found him capable of being excited by loud speaking, and by other similar methods, but he was still without intelligence; and when not excited, he lapsed back again into the state of stupor from which he had been aroused. I gave directions to have him removed to the City of Dublin Hospital, and in the course of the evening he was conveyed to that institution. Shortly after his admission, the stupor became less marked; he was more easily aroused; the pupils were, however, dilated; and when he opened the eyelids, the eyes presented a vacant stare.

His lower limbs and the left upper extremity were paralyzed; there was retention of urine, and the contents of the bowels

[a] Diseases of the Heart and Aorta, p. 215.

escaped involuntarily. On the following morning, he was more conscious; but in all other respects his symptoms had undergone very little alteration. The *visible pulsations* of the carotid, temporal, and subclavian arteries, were obvious to the most superficial observer; but that which arrested my attention most particularly, and for which I was certainly not prepared, was an arterial pulsation in certain situations where it would assuredly be least suspected to exist, and where, as far as I can ascertain, it has never been witnessed before. On drawing down the bed-clothes for the purpose of examining into the state of the heart and lungs, my attention was arrested by a most distinct and extraordinary arterial pulsation at either side of the sternum, corresponding to that portion of the intercostal spaces, and synchronous with the systole of the left ventricle of the heart. This visible pulsation, which in every respect corresponded to that in the carotid and subclavian arteries, could be distinctly seen and felt (though not to the same degree), extending downwards at either side of the abdomen towards the groins. I directed the particular attention of the gentlemen who were present to this remarkable circumstance; indeed, it needed no remark of mine to render it more impressive, for the pulsations were too evident to escape observation: the arteries which were the seat of this phenomenon appeared, at each diastole, to bound through the intercostal spaces all along the sides of the sternum. It appeared to me certain, and at the moment I stated it as my opinion, that the internal mammary arteries were the seat of this pulsation. The action of the heart was violent and tumultuous, and its impulse considerable and apparent to the naked eye. On making examination of the precordial region by the stethoscope, a loud and distinct *bruit de soufflet* was heard in the neighbourhood of the union of the cartilage of the fourth rib of the right side with the sternum, accompanying the first sound of the heart. This bruit was prolonged into the arteria innominata, the common carotid, and the subclavian arteries; and at the same moment when the finger was applied over the trunks of these vessels, a distinct *fremissement* was ascertained. After the most careful examination, I was unable to detect any bruit accompanying the second sound of the heart; on the contrary, the ordinary normal second sound was clear and distinct. Pulse 130; head hot. As the bladder was unable to empty itself of its contents, particular care was taken by our industrious resident pupil, Mr. Jones, to remove the urine by means of the catheter. Fæces passed involuntarily, but without diarrhœal

symptoms. He was ordered small doses of calomel and James' powder, and, at the same time, beef-tea and wine.

Monday 10. Motion of left arm slightly improved; patient was more intelligent, and able to speak so as to be easily understood. Feels extremely weak. Taking beef-tea and wine freely. The bowels having become too free, it became necessary to discontinue the calomel, and to control them by suitable astringents.

Tuesday 11. Much the same as yesterday; diarrhœa, though less, yet still continues; commencing bed-sore over the sacrum; prostration considerable. The patient sank during the evening.

Previous History.—On making inquiry into the previous history of this poor lad's case, I was able to ascertain that some few years back he laboured under a severe attack of what his mother called "fever." It appears that he suffered severely from pains in his limbs and in his back, and that he was subject since that attack to palpitations, and that on one or two occasions he had laboured under an attack resembling epilepsy. It appears, also, that on the 6th of June last, whilst engaged in following his occupation of porter, he was seized with a convulsive fit in the street, that he became quite unconscious, and in this state was conveyed to Dr. Gardiner's house, in Upper Leeson-street, where he received every attention and assistance which his circumstances required. From this attack he soon recovered, and was afterwards able to engage in his ordinary occupation, until the 8th, when he was again seized with a more severe attack of the same nature, and of which he finally died.

Examination of the body, thirteen hours after death.—General venous turgescence of the scalp and dura mater; vessels of the pia mater universally congested, both on the surface of and between the convolutions; increased vascularity of the cineritious substance of the brain; slight sub-arachnoid effusion over both of the hemispheres; no extravasation of blood, but a small quantity of serum was found in the lateral ventricles; the minute arteries in the substance of the brain were injected with blood. I opened the cavity of the chest so as to preserve the sternum, the cartilages of the ribs at either side, and the internal mammary arteries. The pericardium was next opened. There was no evidence of pericarditis. The volume of the heart itself appeared greatly increased in size, and it was found that this depended on a considerable hypertrophy of the left ventricle. So large was this cavity, that it appeared to form

very nearly the entire bulk of the heart; the heart, instead of presenting the ordinary shape, appeared more of a globular form, and its shape was determined by the altered form of the left ventricle: the right ventricle appeared more like a layer of thin muscular structure, laid over the upper part of the left ventricle, than one of the ventricular cavities of the organ; and its interior presented more the appearance of a slit or fissure than of an ordinary chamber. The infundibulum of this ventricle was thrust forward by the enormously thickened condition of the upper part of the septum ventriculorum which lay behind it. The tricuspid valve was healthy. On making an incision into the left ventricle, its walls were found rigid and unyielding, and fully one inch in thickness; its cavity was not increased in size; there was no evidence of inflammation upon its lining membrane, and the mitral valve was healthy. The left auricle was thicker than in health, and its cavity was in proportion to that of the left ventricle. The aortic opening of the ventricle was rather narrower than usual, and that portion of it which is formed by the muscular fibres of the ventricle was rigid and increased in thickness.

The semilunar valves of the aorta were thickened, corrugated, and rigid, and formed, by their approximation towards each other in the centre of the area of the vessel, a small triangular orifice, through which one could see into the cavity of the ventricle, and through which also a certain quantity of water, which was poured into the aorta, passed into this cavity. Each of the valves, however, was entire, but in their substance was deposited a material of an atheromatous character. They all three stood away from their corresponding sinuses. The three sinuses of Valsalva were all enlarged, more especially that one which bore no relation to either of the coronary arteries. The great sinus of the aorta was much enlarged: the entire area of this portion of the arch of the aorta was therefore increased in its calibre. On allowing a current of water to flow into the aorta, one portion passed through the triangular aperture formed by the approximation of the valves into the ventricle, whilst the remaining portion distended the sinuses of Valsalva, which, in consequence of their patulous condition, readily received it. The aperture through which the blood of the left ventricle flowed into the aorta was evidently much constricted, but clearly admitted of regurgitation of the fluid into the ventricle. On examining the origin and course of the internal mammary arteries, it was distinctly seen what gave rise to the extraordinary pulsation at either side of the sternum corresponding to that portion of the intercostal spaces.

Both of these arteries were enormously dilated, so as to resemble two ordinary common carotid arteries. They became tortuous as they descended, and ultimately became united with the internal epigastric arteries, which were also of immense caliber, and exceedingly tortuous. Looking at the magnitude of these vessels, I was fully convinced that the aorta must be the seat of an arrest of development. Accordingly, having examined this vessel, I found that what I had anticipated was really the fact. The abdominal aorta had become greatly diminished in size, and its iliac branches were in proportion exceedingly small. The diminution in the caliber of the aorta appeared to have taken place rather suddenly after the giving off of its visceral branches. The abdominal viscera were all healthy, and well developed.

The case now related appears to me to possess a good deal of interest, because it establishes, in my opinion, the following positions:—

1. It is possible to have regurgitant disease in its very early stage without having the second or regurgitant murmur taking the place of the healthy second sound of the heart.

2. Visible pulsation may be distinctly manifested without the regurgitant murmur.

3. In this early stage of regurgitant disease, the functions of the brain may be seriously involved.

With regard to the first of these positions, it would appear that the absence of the second or regurgitant murmur might be easily explained by a reference to the pathological condition of the parts related to the origin of the aorta. It has been already stated that the semilunar valves were thickened, corrugated, and rigid, and that they stood away from the sinuses of Valsalva, their edges and surfaces approximating towards the centre of the area of the aorta, yet so as not to perform perfectly the function of valves, but, on the contrary, admitting of a certain amount of regurgitation into the ventricle. Now, that portion of the column of blood contained within the aorta, which thus regurgitated through the abnormal and permanent opening between the valves, occupied a central position in the artery; whilst that portion of the column which lay nearer to the coats of the aorta, and which was by much the larger portion, rushed, on the contraction of the aorta, into the three sinuses already open to receive it. Thus at one and the same instant of time there were, partial regurgitation and valvular obstruction at the orifice of the artery; but the valvular hindrance to the reflex flow of the greater portion of the blood being external to the central regurgitation, pro-

duced, from its closer proximity to the ear, the ordinary second sound so distinctly as to obscure completely the second or regurgitant murmur which characterizes the more advanced condition of permanent patency of the aortic valves. My friend, Professor Law, after a careful examination of the preparation, came to the same conclusion with regard to the causes of absence of the regurgitant murmur as I had arrived at. After he had stated his opinion to me upon this point, I read for him the explanation which I have already given, and which I had previously committed to writing.

I think the case is valuable also in a pathological point of view, because it exhibits the morbid lesions which coexist with the stage which occurs between the primary or the obstructive stage of disease of the aortic valves, and the well-marked permanent patency or inadequacy of these structures which has been so faithfully described by Dr. Corrigan. In fact, I would consider this as the second or intermediate stage of the disease; and that had the patient survived sufficiently long, the diseased condition of the valves would have terminated either in their rupture or in their absorption, which would thus have admitted the larger portion, if not the entire column of the blood to regurgitate into the left ventricle, thus giving rise to *permanent inadequacy associated with regurgitant murmur.*

In the last stage of the disease, that is, where there is a full and free regurgitation admitted back into the ventricle, the cavity of this chamber becomes enlarged in its capacity, owing to the long-continued and increasing pressure exercised upon its walls by the column of the blood flowing into it from the aorta.

The following organic lesions would, therefore, appear to attend and follow the disease of the aortic valves to which we have been alluding:—

1st. Thickening, rigidity, and corrugation of the valves, with narrowing of the orifice for the passage of the blood of the ventricle.

2nd. Hypertrophy of the left ventricle as the result of this obstruction existing at the aortic orifice, as yet unattended by any marked dilatation of the cavity of the ventricle; the aortic valves, to a certain, though not to any considerable extent admitting of regurgitation, as in the case of Lang.

3rd. Increased and considerable inadequacy of the aortic valves, arising from their "absorption," or from their "rupture," or from their being "curled in against the sides of the

aorta,[a] permitting free regurgitation, and accompanied by dilatation of the cavity of the ventricle from the increasing pressure of the regurgitating blood, and still attended by hypertrophy of the muscular structure of the left ventricle.

In the instance before us we have already observed the immense hypertrophy of the left ventricle. This condition of the muscular walls of this cavity must have succeeded to the constriction at the aortic opening, in obedience to the law which throughout the animal economy exists with regard to muscular development. An obstruction had been presented to the free passage of the blood of the left ventricle. The mitral valve was healthy, and therefore admitted of no regurgitation in the direction of the left auricle. An increased amount of force became necessary to overcome the resistance at the aortic orifice. The force of the ventricular contractions was necessarily increased; and in obedience to the law already alluded to, and which finds a familiar illustration in the muscles of the right arm of the blacksmith, the muscular structure of the ventricle underwent a corresponding alteration, and became hypertrophied. Speaking upon this point, Dr. Elliotson remarks:—"When the narrowness is at the mouth of the aorta, the action of the left ventricle, notwithstanding the pulse is small, is sometimes very strong, from its walls being hypertrophied."[b] We may repeat here what has been so correctly observed before by Dr. Corrigan, that when the deficiency of the valves is considerable, allowing a full stream of blood to rush back into the ventricle, "the heart, in all the cases that occurred, was enormously enlarged, and its bulk arose from the state of the left ventricle, which in some cases was so much enlarged *in cavity and in thickness*, as to make the organ resemble rather the heart of a bullock than that of a man."

The accidental circumstances, viz., the diminished volume of the abdominal aorta, together with the enormous enlargement of the two internal mammary and the two internal epigastric arteries, seem to me to invest this case with a peculiar interest. Nothing can exhibit more impressively or more beautifully the compensating power which exists in certain parts of the animal economy. Thus, when vision is destroyed, the sense of touch becomes highly exalted, and compensates for the sad privation. When the large artery of a limb is tied,

[a] Corrigan, *op. cit.*, p. 226. [b] Lumleyan Lectures, p. 17.

and the direct supply is thus cut off, the smaller blood-vessels become dilated, and carry on the circulation below the ligature. Here we have a genuine example of compensatory dilatation of four small arteries situated upon the front of the body, in order to make up for the dwindled abdominal aorta. Whatever may have been the events which gave rise to this remarkable arrest of development in this latter artery, I am not in a position to state at present; but it is clear that wherein it failed in supplying the lower extremities with blood, its functions in this particular were abundantly supplied by the two internal mammary arteries conveying the blood from the arch of the aorta into the external iliac arteries, by means of the free anastomosis which always exists between the former vessels and the internal epigastric arteries. This anastomosis is always well marked in the normal condition of these vessels; and in the instances which are recorded of obliteration of the abdominal aorta, the lower extremities must have mainly depended upon it for their supply of arterial blood.

In a practical point of view, therefore, the instance before us may be looked upon as one of extreme importance, when considered in relation to the three great operations,—ligature of the abdominal aorta, ligature of the common iliac, and of the external iliac arteries. Before determining upon any one of these operations, the surgeon must take into consideration what reserves he may calculate on for the supply of blood to the lower limbs after the main current has been cut off by his operation. With regard to the ligature of the abdominal aorta, the results of the operation have been so uniformly fatal in the cases in which it has been performed, that the freedom of the anastomosis of which we have been speaking should scarcely tempt the surgeon to recommend so formidable an undertaking with any prospect of success. This operation has been performed five times in the human subject, and in every instance it has terminated fatally. The operation of tying the common iliac artery has terminated favourably in nearly two-thirds of the cases in which it has been performed; and still more favourable results have succeeded to the ligature of the external iliac. In determining upon these two last operations, therefore, it is evident the surgeon need labour under no apprehension as to any failure of arterial supply; he may especially rely upon the free communication which he knows exists between the subclavian and the termination of the external iliac, through the anastomosis between the internal mammary and epigastric arteries.

EXPLANATION OF PLATES IX. AND X.

Plate IX.

Fig. 1.

A The narrow triangular opening from the left ventricle, formed by the thickened and corrugated semilunar valves of the aorta.
B B Two of the sinuses of Valsalva, abnormally enlarged.

Fig. 2.

A The abdominal aorta, abnormally diminished in size.
B B The common iliac artery of each side.
C C The external iliac artery of each side.
D D The internal iliac artery of each side.

Plate X.

A A The internal mammary artery of each side, tortuous, and abnormally increased in size.
B Internal epigastric artery of left side, also greatly enlarged.
C C Anastomosis between the above arteries.

The preparations from which the accompanying illustrations have been made are preserved in the Museum of the Royal College of Surgeons.

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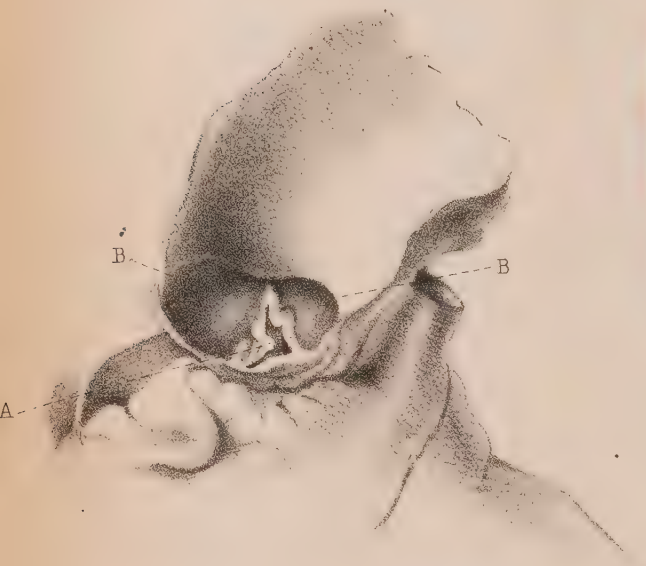

Fig. 1.

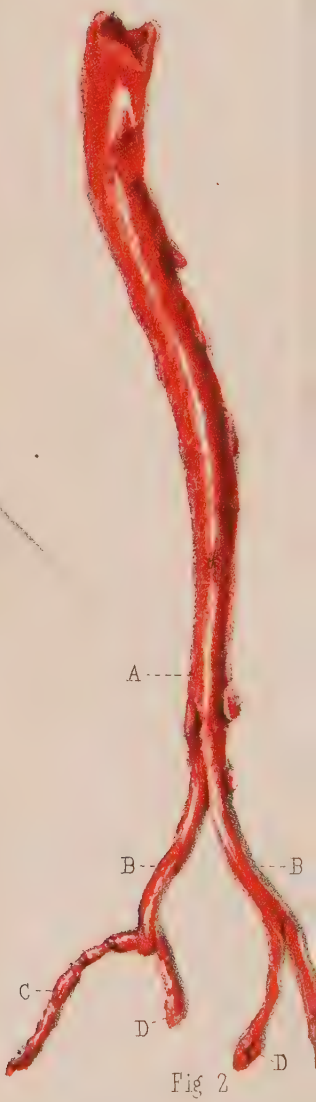

Fig 2

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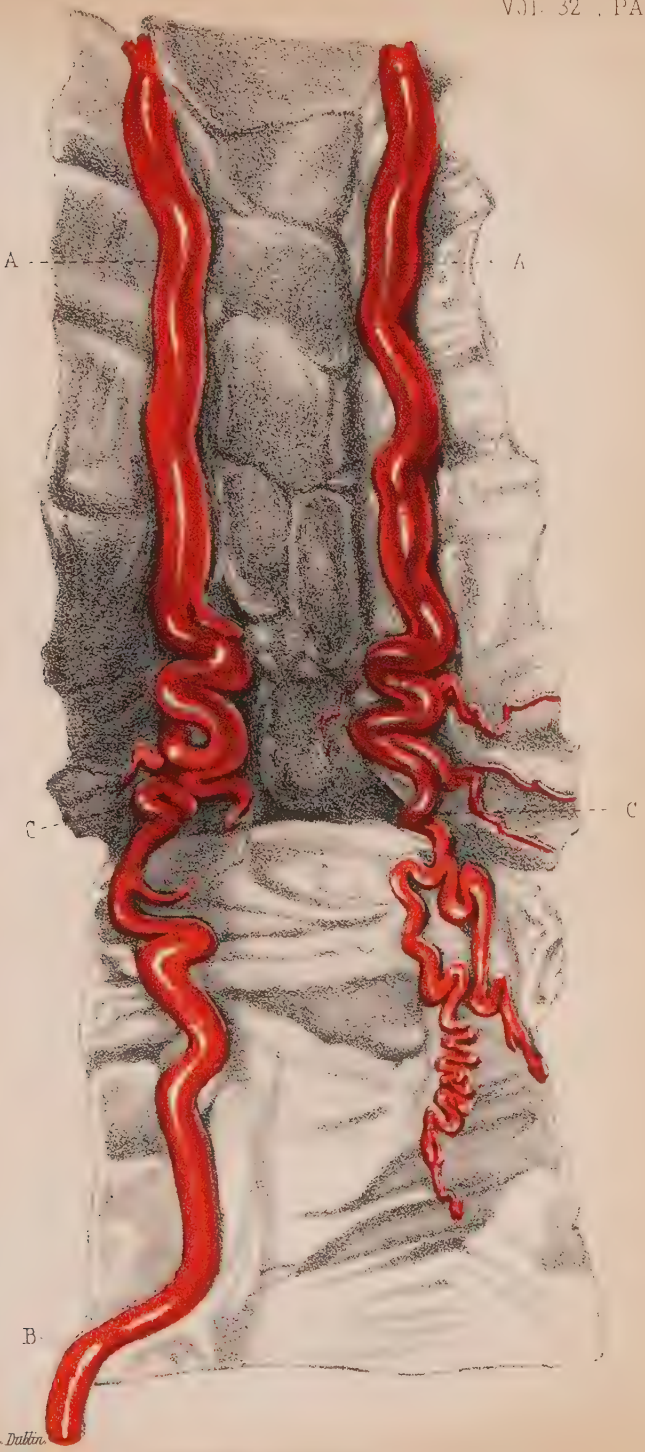
condition of the Internal Mammary and Epigastric Arteries.

PLATE X.



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Art. XXII.—*On some of the Watering Places and other health-resorts of Switzerland.* By H. R. de Ricci, M. D.

In consequence of the numerous applications I have received during the summers of the past and present year for advice, where to go to abroad, I am induced to lay before my professional brethren the following short account of some of the principal bathing-places in Switzerland; and as it is not my intention to describe in these pages all the bathing-places and other health-resorts of that country, but only those with which I have made myself personally well acquainted by repeated visits, I trust the information I shall convey will prove acceptable.

I shall commence with the baths of Loëche or Leukerbad, the first being the French, and the second the German names. I select Loëche because it is easy of access, well provided with hotels, attended at present by a highly intelligent physician, my friend, Dr. Mengis, of Brieg, and because its waters are truly efficacious, while its situation is healthy.

Loëche *can* be reached from Dublin in sixty hours. I do not mean, however, to recommend such a rapid mode of progession, and I only mention it to show how near to us it has been brought by the accelerated communications of the present day. The shortest route is by Paris and Geneva, thence by steamer across the Lake to Villeneuve, and then by railway along the valley of the Rhone. At present the railway does not reach quite so far as Susten, at which point the road leading to Loëche branches off to the left of the traveller, going up the valley towards the Simplon; but by next summer, it is expected, it will be completed. Leaving the valley of the Rhone, a magnificent road, lately constructed, leads through glorious alpine scenery to the stupendous pass of the Ghemmi, at the foot of which is situated the village of Loëche.

The medical value of the waters of this place has been known for many centuries; and for many years it has been visited by great numbers of Continental invalids, but rarely have our countrymen been to that locality for purposes of cure; and though it is visited yearly by thousands from these islands, it is only *en passant* either in going to or coming from the Bernese Oberland, and principally for the purpose of seeing that most interesting path cut into the face of the rock, known as the Pass of the Ghemmi. But if the British are rarely to be found there, plenty will be met from the north of Europe,

Swedes and Russians, as well as French and Germans, who have learnt to appreciate the value of these waters.

The great drawback to this bathing-place, and which, no doubt, has till now prevented our pleasure-seeking population from frequenting it, is the absence of all artificial excitement, in the shape of gaming-houses, balls, open-air concerts, and all the other various so-called enjoyments, which at Homburg, Baden, and other German watering-places, serve to attract and entice the votaries of pleasure. This very drawback, however, is in my opinion one of the great advantages of the place, and one which ought rather to recommend it to all health-seeking persons; but if it lack artificial amusements, nature has amply supplied it with nobler sources of enjoyment in the magnificent scenery which surrounds it.

Another drawback which existed, till lately, was depending on a peculiarity of the mode of using the waters. The bathers require to remain in the water for many hours, varying from one to nine, and even eleven daily, generally divided into two periods, the first commencing as early as four or five o'clock in the morning. In consequence of this necessity, and the want of accommodation, the patients had to bathe promiscuously in one enormous tank, young and old, men and women, priests and friars, sick persons and amateur bathers, all pell-mell. Now, although this did not interfere in the least with the comforts of our Continental friends, it was scarcely adapted to our habits and ideas, and was probably one of the causes why these baths never found favour in our eyes. It is different now; there are at present five separate establishments, each supplied with large piscinæ or bathing-tanks, capable of accommodating from forty to fifty bathers each, and also furnished with private chambers, where, for a small additional payment, the more fastidious patient may bathe alone. I am, however, inclined to think that the great length of time required to be passed in the water would deter many from resorting to solitary bathing.

In some of the new establishments, in addition to the large piscinæ and the single baths, intermediate tanks have been provided, capable of accommodating half a dozen bathers, and which can be either hired by a single family, or a small coterie of friends, who would not object to bathe together.

I shall never forget my first impression of the baths of Loëche. It is now many years since, in the course of a summer's wanderings through Switzerland, after exploring the then almost unknown valleys of Saass and Zermatt, I crossed the

Rhone, at Susten, and slowly made my way by Jinden to Loëche, intending to cross over the Ghemmi to Kandersteg. I put up for the night at the Hotel de France, in those days the Clarendon of Loëche, with the intention of crossing the Ghemmi the following morning, so as to insure, if possible, a whole day to enjoy the magnificent panorama visible from the top of the Pass, about 7200 feet above the sea. But during dinner I heard so extraordinary an account of the doings at this place, that I determined on remaining the following day, to verify the strange stories I had listened to that evening; and eventually I felt so interested in the subject, that I remained at Loëche for a fortnight. During this time I had ample opportunities of studying the characters of the waters, and their effects on the human organization, &c., &c.; and became convinced of their efficacy in many forms of disease,—a conviction which has been confirmed by subsequent visits to that place.

My pen would fail to convey the impression I received when I first entered the large bath-room; for any one that likes may walk in, and lounge over the balustrade which borders the tanks, watching the bathers, or conversing with such as may be acquaintances; but it has been so well described by a contemporary of ours, that I cannot refrain from quoting him:—"The stranger will be amazed, on entering the bath, to perceive a group of some twelve or fifteen heads emerging from the water, on the surface of which float wooden tables holding coffee-cups, books, newspapers, snuff-boxes, and other aids, to enable the bathers to pass away their allotted hours with as small a trial to their patience as possible. The patients, a motley company, of all ages, both sexes, and various ranks, delicate young ladies, burly friars, invalid officers, and ancient dames, are ranged around the sides on benches below the water, all clad in long woollen mantles, with a tippet over the shoulders. It is not a little amusing to a bystander to see people sipping their breakfasts, or reading the newspaper, up to their chins in water; in one corner a party at chess, in another an apparently interesting *tête-a-tête* is going on; while a solitary sitter may be seen reviving in the hot-water a nosegay of faded flowers." As the waters are at first slightly purgative, and more to some persons than others; and in consequence of the many hours that each patient has to spend in the water, it was found necessary to contrive some sort of closet in which the bathers might retire, if requiring to go to stool, without the trouble of having to leave the bath, get dried, &c., &c.; and if

in a hurry, not even find time to be dried, and thus catch cold. This has been very ingeniously managed, and each tank is supplied with two water-closets, *water-closets* to all intents and purposes, to which a bather may retire without getting out of the water at all.

The water which supplies these baths comes from several springs, the oldest known being now solely used in a bath devoted to the service of indigent persons,—it goes by the name of the Golden Spring, from the fact of its apparently gilding any silver coin which would be suspended in it for a night. I believe this effect to be due to the precipitation of a small quantity of oxide of iron; but the common people firmly believe, and have done so for centuries, that the spring contains gold in solution, and to its presence mainly owes its virtues. The most ancient bath structure of the place is erected over it. The main supply for the other bath-houses is derived from a spring which arises at a temperature of 124°, in the middle of the village, from which it is conducted by subterraneous pipes to the different establishments of the place.

The great physiological fact which at once strikes even the most casual observer, is the wonderful improvement in tone and vigour of frame obtained by the bathers, even though they remain six, eight, or ten hours daily soaking in hot water at a temperature of about 96°. At first it would seem as if such proceeding would inevitably debilitate them more and more, but the fact is quite the reverse. I have seen delicate females, scarcely able to drag themselves along when first they came to Loëche, walk sturdily up the Torrent Horn (a steep mountain, 10,000 feet above the sea, and 5500 above the baths), during the *débaignée*, or the latter part of the *cure*.

Another striking fact is the total absence of goître at Loëche, a fact more especially remarked by those travellers who reach it from the valley of the Rhone. All the way from Villeneuve, where the Rhone empties itself in Lake Leman, to Susten, where the road turns up towards the Ghemmi, almost every person one meets with is afflicted with goître in some stage of growth, from the slight swelling over the front of the throat, perhaps rather adding to, than detracting from the beauty of youth, to the enormous disfiguring tumour hanging from the neck, often of such size as to require support with a bandage; but the moment Loëche is reached, not a goître is to be seen, excepting with such as may have come for the benefit of the waters; nor has a case of goître ever been known to arise at Loëche, so, at least, I have been assured; and many young peo-

ple afflicted by this disfiguring disease are yearly cured by the use of its waters, taken both internally and externally.

In consequence of the wonderfully small amount of gaseous or solid matter found on analysis in the waters of this place, some physicians have been led to suppose that the benefits derived from their use were principally due to the increased action of the skin brought about by the long-continued immersion in water at a high temperature; and there can be no doubt that the very decided action of the skin evinced by the appearance of the characteristic *poussée*, an eruption which occurs at about the sixth or twelfth bath, is most probably the mode by which nature principally eliminates the morbific elements from the constitution; but I greatly doubt that bathing in plain river-water, at a temperature of 96°, even for as long a space of time as is practised at Loëche, would be conducive to the same effect; and Dr. Mengis assured me, besides, that this characteristic eruption has come out in patients who had never taken a bath at all, and only drank of the water.

The diseases for which the waters of Loëche seem best adapted are, chronic rheumatism, scrofulous enlargements either of joints or glands, and some cutaneous affections; they are also vaunted in the treatment of old wounds, but I should consider them in such cases to be inferior to some of the waters of the Pyrenees, Barèges, for instance; they are also said to possess the strange property of restoring to active acute condition old chronic diseases often long forgotten. I was assured that cases of enlargement of the spleen—ague cakes—had been known to diminish by the use of the waters of Loëche, giving rise at the same time to genuine attacks of intermittent fever. And old cases of syphilis, which had been considered as cured years ago, had been known to break out afresh, and exactly with the same form of disease which had last been treated. I have no practical experience of these facts, but I was assured of their truth both by Dr. Mengis and others.

The cure, or course of baths, generally occupies three weeks—a little more sometimes, if the eruption is irregular in its appearance—but never less. The *poussée*, or characteristic eruption, upon which seems to depend the success of the treatment, generally makes its appearance from the sixth to the twelfth day; but varies and differs considerably with each individual. I have seen it so slight as to be scarcely more than a slight redness, principally about the knees and elbows, extending from them to the thighs and sides of the thorax, without any constitutional symptoms beyond a white tongue for a

day or two; and I have seen it ushered in by considerable fever, and other constitutional disturbances, and taking a completely eczematous character, each vesicle being surrounded by a red areola at its base. Between these two extremes, every shade of difference in the eruption may be met with; but, *ceteris paribus*, those cases in which the *poussée* has been best marked, within certain limits, are the cases which derive most benefit from the baths.

The patients bathe twice a day, lying on the bed for an hour after each bath. At first they remain in the water only an hour; but by degrees the duration of the bath is increased, until it reaches five hours in the morning and four hours in the afternoon, and even more in some cases, so that, in order to accomplish such prolonged bathings, some invalids commence bathing as early as 4 o'clock in the morning. The longest period, according to the physician's orders, having been attained, the *débaignée* is commenced, by which is understood the gradual shortening of each successive bath until the cure is completed.

The composition of the waters of Loëche is very simple—they contain only a little sulphate of lime, a little sulphate of magnesia, and a very little sulphate of potass, with a trace of iron in the golden spring, viz., 1000 grammes of water submitted to analysis yielded:—

	Grammes.
Sulphate of lime, ...	1·635
„ magnesia, . . .	0·215
„ potassa, ...	0·065
Iron, ...	a trace.

The water, when drank at the spring, is tasteless, inodorous, beautifully clear, and evolving no gaseous products; but go into one of the baths, and the smell of sulphurretted hydrogen is unmistakeable. Such is their composition: it is certainly surprising how such simple substances, and in such marvellously small quantities, should produce such astonishing effects—but it is a fact, nevertheless.

(*To be continued.*)

Art. XXIII.—*On the Radical Cure of Varicocele by Subcutaneous Ligature of the Spermatic Veins.* By Jolliffe Tufnell, Surgeon to the City of Dublin Hospital; Fellow and Examiner in Surgery, Royal College of Surgeons in Ireland; Ex-Regius Professor of Military Surgery, &c.

Few surgeons can be long in practice without having numerous cases of varix of the spermatic cord come under their observation. Varicocele is indeed an affection from which all classes of society suffer, and some to a very great extent. It is a source of annoyance to all, and of almost disqualification for their respective businesses to many. It prevails at a period of life, too, viz., that between puberty and advanced manhood, when the individual, whatever be his calling, needs the full use and vigour of his bodily powers. In the Tropics it persecutes the European, unfitting him for any duty whatever; and at home, even in our temperate climate, is, as I have already stated, a source of annoyance to very many.

It is true that some persons go about with the veins of their spermatic cords greatly enlarged, tortuous, and distended, and bear the inconvenience without complaint; but to the majority it is a continued source of weariness and pain; in many instances totally depriving the patient of all enjoyment of life. The depressing influence, too, upon the mind of the individual which I have witnessed it to exercise, has been in some cases extreme. I know few affections (except syphilophobia), in which the attention of the patient is so concentrated upon his malady as in this. The weight in the scrotum, the perpetual aching up the cord, and through the groin to the back, the wearing pain along the thigh, and sympathetic action of the nervous system generally, all tend to render the sufferer miserable: his whole thoughts, indeed, are fixed upon his ailment, and his mind may almost be said to be centred in his scrotum. This may seem to many to be an overdrawn sketch; but it is what I have witnessed so often, that I am inclined to attach a very great importance to any measure which is calculated to obviate this malady, and permanently give relief *without risk*. The amount of inconvenience experienced is not altogether in keeping with the dimensions of the tumour in the scrotum; for in some cases a considerable dilatation of the veins will be hardly regarded by the patient, whilst in others a much less amount of distension will produce, in persons of nervous temperament and irritable system, continued suffering.

Upon the symptoms of this affection, and its exact pathological character, it would be superfluous to remark; but in refe-

rence to its consequences, I would observe that in my experience the diminution in virile power, which so frequently is complained of in this affection, is more depending upon mental disquietude than upon any alteration in the testis itself. The gland of the diseased side will most frequently be found soft and flabby, as compared with the state of health, but its secreting structure, still fully capable of exercising its functions.

With reference to the treatment of these cases, as they come before the practising surgeon, I am sure many will bear me out as to the anxiety which is expressed by patients so afflicted to have the affection radically cured; and of their dissatisfaction at being advised to continue under palliative measures. They will follow them for a while (if not previously tried); but will most frequently return, and press for the adoption of means calculated to give permanent relief, although warned of the risk they may incur.

It was in consequence of cases of this nature, in which, almost contrary to my own wishes, I was forced by the patients to operate, that I adopted the method which I am now about to advocate—a plan which, I feel assured, will render the hitherto hazardous procedure of obliterating the veins of the spermatic cord an act of almost perfect safety, accompanied by success. That the obliteration of these veins has always been a subject of anxiety to the surgeon must be evident, from the variety of modes of operating that have one after the other been employed. If we turn to the records of surgery, we find an almost endless variety, some of a perfectly barbarous kind. We have, in the first place, the compression of the veins "between iron forceps, whose jaws, being gradually tightened by means of thumb-screws, produced as the result a slow section of the soft parts together with the vessels;" next, the *gentler* treatment of "passing a ligature through, and tying up the skin of half the scrotum with all the vessels except the artery and vas deferens, so that the scrotum is divided by ulceration." Then Reynaud's modification of the above, "by introducing a curved needle, threaded with a ligature, behind the bundle of veins, bringing it out again about two-thirds of an inch from the place of entrance, enclosing the dilated vessels, which ulcerate, and are divided in the course of from fifteen to eighteen days, the ends of the ligature being firmly tied over a roll of linen or paper." After that came Gagnebe's improvement upon the above, viz. by "bringing the ligature out at the same place where it was introduced, strangulating the veins by the loop formed under the skin." Then the cutting away of the loose, relaxed skin of the scrotum, as advocated

by Sir Astley Cooper. Next Vidal's operation "of compressing the veins of the cord between two silver-wires, passed, one in front and the other behind the vessels, rolling the veins up gradually, and continuing this procedure until the wires freed themselves by ulceration." Again, Velpeau's plan "of introducing two pins, one before and the other behind the veins, which are then compressed by carrying a ligature around the extremities of the pins, the varicocele being included between them." After this, Velpeau's simpler plan of passing a pin behind the veins, and working a twisted figure-of-8 suture over them; the twisted sutures of Sir Benjamin Brodie, modified by the subcutaneous incision of the veins between them, as practised by Dr. Lee; the passing of threads through the veins as setons, and their obliteration by the introduction of a heated awl or wire, as suggested by Mr. Fergusson; and the double ligature of Mons. Ricord. All of these have severally been employed; and the very variety must be sufficient to prove how unsatisfactory in the majority of cases had the previous modes of treatment proved, and how each surgeon, in consequence, had endeavoured to obviate pre-existing objections.

It was with this view that I adopted the annexed modification, the success of which will, I trust, justify its general use. The plan I advocate is simply an improvement upon Mons. Ricord's double ligature, by adding to the double loops for the enclosure of the veins a pair of *retracting guides*, by which the surgeon is enabled to withdraw the compressing medium at any moment, thus holding as it were a check-string upon inflammation in his hand, producing an adhesive phlebitis, and stopping short of the suppurative form.

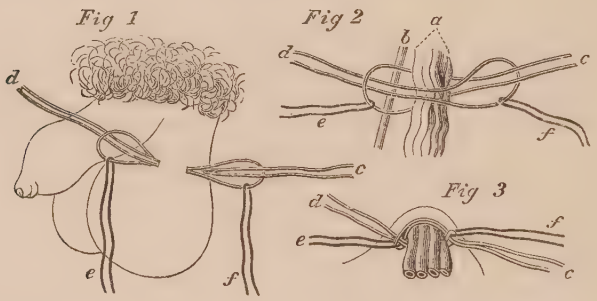
With this latter view, I employ also fine iron-wire as a substitute for the ligature of silk; metal being less irritating to the parts engaged.

Before resorting to the plan which I am now about to advance, I had found that in each instance in which I had used Ricord's loops, suppuration in the scrotum occurred. Since employing the retracting guides, no such annoyance has taken place.

The method, then, that I advocate is the following:—In any given case of varicocele that comes before me, I interrogate the individual, and ascertain whether any remedial means have as yet been adopted; and, if not, I recommend palliative treatment, viz. attention to the bowels, so as to prevent, by regularity of action, any lodgment in the descending colon;

the use of cold water sponging night and morning, to constringe the vessels and dartos of the scrotum; and a bag truss. I do not advocate the use of pressure to the dilated veins at the external abdominal ring by means of the spring truss; or the puckering in of the loose skin of the scrotum, and the confining it in a steel ring, as sometimes adopted—my experience being to the effect, that these remedies only irritate the patient, and that they are both inferior in action to a well-fitting common bag truss. If these simple measures fail to afford such an amount of relief as will satisfy the patient, and that he persists in having more effectual means adopted, then I employ the following proceeding, after satisfying myself of the non-existence of organic disease of the kidney:—

I prescribe an aperient, to evacuate the contents of the intestines, of the compound powder of jalap combined with calomel. I confine the individual to bed for a day, and then deligate the veins in the manner recommended by Ricord, and illustrated in the accompanying sketch, taken from Bernard and Huette's work, modified as will be described.



An assistant separates and holds aside the vas deferens. The bundle of veins is then isolated, and taken up in a fold of the skin, the first loop of wire being carried behind the veins (Fig. 1, *d*). A second loop of wire is then passed in the opposite direction, in front of the veins, through the same orifices as the first (Fig. 1, *c*). The bundle of veins (Fig., 2 *a*) is thus included between the two loops, the free extremity of each wire being passed through the loop of the other, as seen in Fig. 2, *c*, *d*. The wires are then drawn in opposite directions, until about as much of each loop remains projecting from the scrotum as is seen in Fig. 1—and the amount of the projection of the loop made equal on either side. Two portions of iron-wire are now

taken, each four inches in length, and doubled in the middle as closely as possible. One of these is passed through either loop, and drawn to its centre. The ends are then twisted. These wires form the *retracting guides*, and give the surgeon the most complete control over the vessels of the cord, enabling him at any moment that he wishes to take the ligature from off the veins, and remove all source of irritation from within the scrotum. The main wires (Fig. 3, *d, c*) are now to be drawn upon equally and *forcibly* until the vessels of the cord are completely strangulated. This done, the ends of the wires are brought up and attached to a ratchet, and thereby kept tensely strained; or else twisted around the extremities of a piece of strong watch-spring, bent back into an arc, the effort of which, to restore itself, keeps up continuous tension upon the cord.

With reference to the length of time during which it may be necessary to maintain this constriction, in order to produce sufficient adhesive phlebitis, and yet avoid the suppurative form, this must entirely depend upon the constitution of the individual. The guides for the surgeon will be the density of the swelling of the veins below the ligature, between the epidydimis and the wires; the feeling of firmness to the touch; and a slight blush upon the integuments of the scrotum. These symptoms, conjoined, will denote that such a degree of inflammation has been excited as will produce obliteration of the venous trunks. The main wires are now to be cut across, and the ratchet or steel spring detached. This done, the figure-of-8 loop encircling the veins is to be opened, by withdrawing the wires through the medium of the retracting guides. All source of irritation being now removed, further inflammation is prevented. No pus is formed in the veins, which can be carried up into the circulation; or external to the veins, in the scrotum, which can give rise to the formation of abscesses in its cellular tissue. A little lead-wash to the scrotum, and rest upon the back in bed for a few days, with low diet and attention to the bowels, completes the cure. The patient, before rising, should be fitted with a suspensory bandage to support the parts. He may then resume his ordinary business or occupation. The following case—that of a medical man who was under my care during the past summer, and treated in the manner described—will well illustrate the mode of proceeding. I give the letter and detail of the case of this gentleman, as forwarded to me by himself after returning to the country, cured:—

"*July* 31, 1861.

"My dear Sir,—I send you, enclosed, a short account of my case. I arrived at home without suffering the slightest inconvenience from the journey. I have now, I am happy to say, lost all the unpleasant sensations of dragging, &c., &c., to which I had been so long a martyr. The consolidated mass in the vein is quite free from any pain or tenderness.

"Believe me to remain yours, very faithfully and obliged,

"_____

"*To J. Tufnell, Esq.*"

Case.—"My attention was first attracted to the enlarged state of the left spermatic veins during the winter of 1854, though they never caused me much annoyance till August, 1858, when I arrived in India, where the hot climate had such a relaxing effect on the integuments of the scrotum, that I found I could not manage to get about with any degree of comfort, without a bag truss, which I then commenced wearing. I remained in India till February, 1861, when I left for England, with a view to having an operation performed. During my stay in India the vein had continued to get larger—being, when fully distended, equal in diameter to that of my little finger—and the testicle had wasted, so as to be not more than half its original size.

"July 13th, 1861. The operation having been determined upon, on the 14th I had three grains of calomel at bed-time; followed by a dose of compound jalap in the morning.

"15th. Bowels well acted on.

"16th. Operation performed about 11 o'clock A.M., this morning. During the drawing together of the wires, and for a couple of hours afterwards, I felt great pain shooting up along the cord, and into the left lumbar region. Had forty drops of Battley's sedative after the operation, in two doses, which procured me some sleep, and almost complete relief from pain. Had barley-water to drink through the day, and some tea and toast in the evening.

"17th. Had a very good night's rest; no pain or tenderness about the cord above the ligature. Venous plexus below the ligature slightly swollen, but free from pain; no fever or constitutional disturbance. The wires were tightened four turns of the ratchet this morning, and three in the afternoon.

"18th. Passed a good night; urinary secretion full, and

easily passed; no uneasiness in cord or lumbar region; veins below the ligature soft and elastic; wires tightened five turns of the ratchet; the wires were tightened again in the evening, when one of them gave way; it was, however, easily repaired.

"19th. No pain or constitutional disturbance; good night's sleep; there is a slight yellow-brownish discharge oozing from the orifices of the wires; and the left side of the scrotum presents a slight blushing fulness; the ligatures were now withdrawn, without the slightest pain.

"20th. Scrotum more corrugated; no discharge from the orifices, and no pain.

"21st. The venous plexus between the ligature and the epidydimis forms an oval hardish mass, somewhat larger than an almond; no pain or discharge; the general functions uninterfered with; had a seidlitz powder this morning; low diet to be continued.

"22nd. Inflammatory deposit much reduced in size, and more globular in shape; free from pain of any kind; integuments of scrotum corrugated; ordered cold lead lotion to the scrotum.

"23rd. Lotion has had great effect in tightening up the skin of the scrotum; no pain; dense consolidation of venous plexus.

"24th. Inflammatory mass reduced in size; to have fish for dinner.

"25th. Same report; allowed up for a short time to-day.

"26th. Feeling no inconvenience from standing.

"27th. Allowed to leave town to-day; there being no pain or uneasiness about the cord or testicle, and entirely free from the dragging sensation that used to be so annoying."

The mode of treatment here advocated I believe to be perfectly free from risk, and certainly most effectual. I should be glad to receive from any members of the profession who may be inclined to adopt it, the results of their practical experience, and its success, or the reverse, in their hands.

Art. XXIV.—*On the Use of Chlorate of Potass in the Treatment of Consumption and Scrofula.* By Alexander Harkin, M.D., M.R.C.S., Eng.; Member of Council, Belfast Medical Society, and of the Belfast Clinico-Pathological Society.

There is not in the entire catalogue of human diseases a single malady that has received a greater share of attention than consumption. The subject appears to be exhaustless; year after year ushers in the pamphlet, or the octavo volume; new exploring instruments multiply almost too fast for comprehension, and special hospitals arise devoted to its study and its cure. No one could over-rate the information that daily accumulates on the etiology, the physical and rational signs, on the pathology and prophylaxis of tubercular consumption; but, we cannot equally congratulate ourselves that we have made progress commensurate in the treatment, or that the average annual mortality from this cause has sensibly declined. Our most reliable authorities only aim at maintaining a *statu quo* state, or at combating symptoms. Dr. Edward Smith, in his "Treatise on Chronic Phthisis Pulmonalis," regards the pretubercular stage as the only period for successful treatment; and Dr. Walshe, in his report on the Consumption Hospital at Brompton, can only claim 4·26 percentage of cures, and that in an institution established under the most favourable circumstances, supplied with every scientific appliance as to ventilation, temperature, medical comforts, &c. No wonder, then, that fully one-sixth part of the gross annual mortality of these islands is due to consumption, and that many thousands besides annually sicken and die from the effects of its congener, scrofula. No doubt, we are informed on the authority of the Registrar-General, that since 1853 the deaths from consumption have decreased, and those from bronchitis have increased; but this only shows the adoption of a more scientific nomenclature by the district registrars and certifiers.

It is unquestionably true, however, that upon a proper knowledge of the etiology and pathology of a given disease, its ultimate cure will depend; but it is equally certain that scientific therapeutics reflect great light upon the nature of disease. For, as we shall see in the progress of this paper, when a remedy is equally successful in the cure of two diseases—as scrofula and consumption—the reasonable presumption is, that they are identical in origin and nature.

The injurious effects produced upon the human constitu-

tion by the habitual respiration of impure air, as exemplified in the production of scrofula and consumption, have been universally recognized by medical writers; but that imperfect aëration is almost the sole cause of these maladies has been left to Dr. M'Cormac to demonstrate. Since the publication of his treatise on the "Nature, Treatment, and Prevention of Consumption," in 1855, and other minor papers on the same subject, my mind has been brought, through personal observation and reflection, to recognize the correctness of his theory, and at length, by a natural inference, to discover a remedy. It was not, however, until a later period, the spring of 1860, that I commenced to carry my convictions into effect, when a second member of a family residing in the neighbourhood of Belfast having become affected with hemoptysis and pulmonary disease, twelve months after the death of her elder sister by phthisis, I called to mind my previous impressions, and reasoned somewhat in this way:—"If it be true that when any warm-blooded animal breathes for a length of time air self-contaminated, or otherwise deficient in oxygen, the requisite excretion of carbonaceous matter diminishes, and it thus accumulates in the blood; that this substance, transmuted by degrees into tuberculous matter, becomes in time a *materies morbi;* that the blood is eventually affected with a dyscrasis denominated tuberculosis, and by its agency tubercles are subsequently deposited in different parts of the body, in the lungs constituting phthisis, in the joints and lymphatic glands, &c., as scrofula—further, if on a chemical analysis of crude tubercular matter by such experts as Preuss and Scherer, as quoted and approved of by Copland[a], it is found to be an unorganized substance, composed in 100 parts,—of carbon, 53; hydrogen, 7; nitrogen, 17; oxygen, 21—practically, a hydrocarbon; then, I felt that to discover the remedy for such a state, but one step farther in advance was necessary, and that this desideratum would be found in that substance which, through the medium of the circulation, would impart to this hydrocarbon, primarily in the blood, and subsequently in the lung-tissue, that proportion of oxygen necessary for its conversion into carbonic acid. A moment's consideration told me that in chlorate of potass this requisite would be found. If we turn to "Thompson's Elements of Materia Medica and Therapeutics," 1855, p. 527, we find that this substance "operates as a stimulant tonic by imparting oxygen to the system from the decomposition of the salt in the body; but in what part of

[a] Medical Dictionary, vol. iii. p. 748.

the system the decomposition is effected is not easily ascertained." I do not know whether subsequent observers have discovered the exact locality in which the decomposition takes place, but this difficulty equally applies to another recognized physiological change, viz., the place in which the carbon of the blood unites with the oxygen to form carbonic acid. If, however, Alison[a] states correctly that this phenomenon actually occurs in the blood itself, then, by the administration of this remedy the circulating system is supplied with the material essential to the conversion of carbon into carbonic acid. Repeated observation has satisfied me that the blood, by the operation of this agent, is changed, and its qualities improved; and thus a factitious substance, the product of the laboratory alone, affords the best evidence of the soundness of the theory of causation by effecting the cure.

For a period of nearly eighteen months I have been prescribing this remedy for every variety of scrofulous disease, and for consumption in its various stages; and although, for a disease of such protracted character as consumption, the period of observation is too limited to allow of complete or extensive statistical results, yet, I consider that I am justified in stating that, with this simple remedy, in conjunction with the ordinary hygienic, dietetic, and moral means, a specific will be found for consumption in its first and second stages; and that, for the last, it will be found most potent in controlling the hectic symptoms and the colliquative diarrhœa, without increasing the perspirations, as in the administation of ordinary astringent remedies. When we have only tubercular deposition or softening to deal with, this remedy has a most powerful effect, when combined with judicious counter-irritation; but I do not mean to pretend that by any species of medicamentation we could, in any instance, restore a patient with large cavities in the lung, with general tubercular infiltration, ulcerated trachea, and perhaps perforations of the pleura, any more than I would propose a universal remedy for the suppurative hepatization stage of pneumonia. It is needless to argue, that if the disease be removed in the first or second stage, we need not fear the last; and as these stages usually extend over a lengthened period, and are those in which medical men are usually first consulted, the terrors and suffering of the last stage need not so much appal us.

The curative effects of chlorate of potass in scrofula are perfectly marvellous; for it appears to exercise double influence

[a] Alison, Outlines of Physiology, pp. 238–251.

when aided by the assistance of lungs comparatively or wholly sound; fifteen or twenty days generally suffice to heal the most extensive ulcerations of the cervical and submaxillary lympathic glands; strumous ophthalmia yields immediately to its internal use, and glandular enlargements and indurations of a scrofulous character in any part of the body appear to subside with wonderful rapidity. As to its mode of administration, I have generally given it internally in doses of from five to twenty grains, dissolved in pure water, four times daily; hot water takes up readily a scruple to the ounce without after-deposition, and this proportion is perhaps sufficient for any purpose, and as much as ordinary stomachs will tolerate. I have also used it as match-paper, burning it in the bed-room before the patient retires to rest; an ointment prepared by triturating two drachms of the powdered salt with an ounce of lard is also very serviceable in the removal of tumours, or for inunction over enlarged joints. On the occasion of first administering it internally, in the case of consumption afterwards to be detailed, I was very watchful lest it might produce bronchial irritation, or intercurrent pneumonia; I have never found any bad effects of that kind follow its use; and further than suspending it during the existence of hemoptisis, I have learned to give it without fear in every stage of the disease. The first effect apparent to the patient is an immediate diminution in the crepitation, and this is an invariable sign; then a feeling of tonicity and vigour imparted to the system; the colour of the skin, and particularly that of the nails, gradually improves; the cough diminishes, and diarrhœa, if present, gradually disappears. As the treatment advances, the physical signs become less marked; the area in which they have manifested themselves gradually narrows itself; the blood appears altered in character —its solid constituents, its fibrine, and red corpuscles increase; muscular energy gradually returns; and even, in some instances, a disposition to plethora of the system develops itself, insomuch that, in several cases, patients have begged of me to permit them to diminish the dose, or refrain altogether from the use of the medicine[a].

I have mentioned already the impossibility, in a period of eighteen months, to present many striking absolute cures in consumption. Such results, I am happy to say, are however occurring in several instances now under my care. Through

[a] In illustration of the flesh-producing power of the remedy, I may mention, that a young man, a patient of mine, some three months returned from America suffering from phthisis, and then much emaciated, has gained six pounds in weight within the last four weeks.

the kindness of the young lady to whom I first administered this remedy, I was enabled to show to the Belfast Medical Society, at its last monthly meeting, on the 7th of October, the pleasing result of its operation in her case; two other patients were also in attendance, cured of scrofulous disease in the neck,—types of a large class relieved in a similar manner. The details of the cases are as follows.—

On 5th April, 1860, I was called to visit Miss M'M., aged 16 years, of bilious temperament, residing at Lagan Village, she had been in delicate health since her sister's death by phthisis, about twelve months previously. Her father had then a cavity in the right lung; her mother healthy. She complained of severe cough, and pain in the chest, with scanty expectoration. After obtaining some relief from these symptoms, she went to the country for fourteen days. Returned on 19th April, suffering from hemoptysis, troublesome cough, and great debility. Morning perspirations now set in; both feet swelled; the expectoration, after the disappearance of the hemoptysis, was flocculent, muco-purulent, suspended in water, and of the usual tubercular character; pulse, 110; much disturbance in digestive organs; menstrual discharge scanty. On examining the chest, there was not much evidence of flattening. Percussion produced a dull sound over the left clavicle, and in the supra and infra-clavicular regions, and one nearly as remarkable in the supra-spinal fossa of same side; and the dulness, anteriorly, extended as far as the upper margin of the fourth rib. The stethoscope detected feeble respiration at the apex, accompanied with moist crepitation, and bronchial respiration towards the sternal end of the left clavicle, and evidence of ordinary bronchial irritation from the clavicle to the fourth rib. After relieving the most pressing symptoms by the ordinary remedies, I set about to endeavour the cure of the disease. I inserted a seton over the left supra-spinous fossa, and maintained a discharge from it for several months; at the same time, upon 5th May, 1860, as I see by my note-book, I prescribed for the first time the chlorate of potass mixture in 5-grain doses. After a short interval, she informed me that the crackling in her lungs began to decline; the stethoscope told a similar tale. This sound diminished steadily; the abnormal dulness gradually retreated in the direction of the clavicle, and, with occasional checks to progress, the patient improved so much that she was enabled to go to the country for the month of August, in the same year. Since that date all swelling of the feet, morning perspirations, and pathognomonic sputa, have disappeared. Her cough, save on exposure to cold, is quite gone. She has gained very much in flesh.

She can travel any moderate distance as well as before her illness, and walks in every day to and from the model school—a distance of nearly two miles each way. Her respiration is full and easy; and, save at the posterior part of the apex of the lung, at the supra-spinous fossa, where close observation may detect a slight evidence of large crepitation, she is to all intents and purposes quite cured. I still maintain the discharge, by a few peas over the site of the original seton.

The next case, that of Rose M'M., a factory-worker, is one of ulcerated cervical glands, cured in twenty days by the internal and external use of the mixture alone. This girl had suffered for five years from scrofulous ulcers in the neck and legs, and from strumous ophthalmia, for which she used in vain the ordinary remedies—cod liver oil, iron, tonics of various kinds, with collyria and lunar caustic for the eyes. She commenced the use of this medicine on 2nd September last, in the proportion of ten grains four times a day, and applied the solution locally by pledgets of lint: this soon sufficed to heal the sores completely. The cicatrices are yet red, and well marked. She is about a fortnight cured, the first dose having been administered five weeks since. Her eyes are now perfectly sound and clear; and, what is of very great importance to her, she can pay undivided attention to her work in the mill.

The third case is also that of a factory-worker. Jane A., aged 28, a flax-spinner, of pale anemic habit, called on me on 12th September last. Left work from inability; has a large cluster of tuberculous glands in her neck, about the size of the closed fist, and extending from her ear to the clavicle on the same side (the left); under the clavicle on that side there is evidence of tubercular deposit; she has a slight cough, and is much emaciated. Ordered the mixture. She returned on the next Saturday, after an interval of seven days, very much relieved; tumours reduced one-half; strength improved, and colour returning. After continuing the same mixture, without any frictions or other interference, the tumours have disappeared; and she has been able to work without intermission since that time, above three weeks since.

Before concluding, I may refer to a case proving the great controlling power of the remedy over the diarrhœa of phthisis. J. M'N., a medical student of four years' standing, sent for me on Saturday, 21st September last. He was then lying in bed, much emaciated, having suffered from hemoptysis for four winters. Complains much of morning perspirations and purging. The alvine dejections average twelve or fourteen daily; they amounted to fourteen on the previous day. Tubercular

deposit beneath the lower part of right scapula, and in the supra-spinal fossa of same side; general debility, and depression of spirits. The first dose of the chlorate of potass mixture appeared to restrain effectually his most troublesome symptoms; on next day he had but two motions, on the succeeding day but one; and he has since continued, with scarcely an intermission, quite free from purging. His colour is improved, his appetite good, his muscular strength returning; and he is now able to walk about, and to start for the country, very much relieved.

In publishing the above observations and record of facts, I am desirous of inviting attention to the peculiar effects of this remedy in scrofula and consumption, a remedy hitherto little prescribed but for low fevers or throat affections. Nor will it lessen interest in the subject, I trust, when I refer to the strange coincidence that, while I was thus carrying on an original and independent course of successful experiments, we are informed, on the authority of Mr. Turle, in the "London Medical and Surgical Journal" of 1st June last, that he himself, as well as an American physicians, whose name I know not, were for about the same length of time similarly and as successfully engaged.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

1. *Fifteenth Report of the Commissioners in Lunacy to the Lord Chancellor.* (Presented pursuant to Act of Parliament—Blue Book. Ordered by the House of Commons to be printed, June 7, 1861. Large 8vo, pp. 238.

2. *Third Annual Report of the General Board of Commissioners in Lunacy for Scotland.* Blue Book. Presented to both Houses of Parliament by Command of Her Majesty. Edinburgh: Printed for Her Majesty's Stationery Office, by Thomas Constable. 1861. Large 8vo, pp. 263.

3. *The Journal of Mental Science.* Published by Authority of the Association of Medical Officers of Asylums and Hospitals for the Insane. Edited by John Charles Bucknill, M. D., Lond. Quarterly Numbers, 36, 37, 38, and 39, for January, April, July and October, 1861. London: John Churchill.

4. *The Medical Critic and Psychological Journal.* Edited by Forbes Winslow, M. D., D. C. L., Oxon. Nos. 1, 2, 3, and 4, for January, April, July and October, 1861. London: John W. Davies.

5. *An Inquiry into a Frequent Cause of Insanity in Young Men.* By Robert P. Ritchie, M. D., Edin., L. R. C. S. E. London: Henry Renshaw. Pamphlet, pp. 39.

6. *Our Holiday at Laverstock House Asylum; How we visited Stonehenge, and what we learned there.* London: John Churchill. Pamphlet, pp. 67.

7. *Annual Reports of the Clonmel District Hospital for the Insane, for the Years ended March* 31, 1860, and 1861. By James Flynn, M. D., Physician-Superintendent. Pamphlet, pp. 15 and 11.
8. *Annual Report of the Armagh District Lunatic Asylum for the Lunatic Poor of the Counties of Armagh, Monaghan, and Cavan, for the Year ended March* 31, 1861. By Robert M'Kinstry, M. D., L. R. C. S. I., Physician-Superintendent. Pamphlet, pp. 15.
9. *The Cottage System and Gheel, an Asylum Tract.* By John Sibbald, M. D. (Reprint). pp. 31.
10. *Thirty-first Annual Report of the Belfast District Hospital for the Insane Poor, for the Year ended March* 31, 1861. By Robert Stewart, M. D., Physician-Superintendent. Pamphlet, pp. 50.
11. *Fifteenth Annual Report of the Devon Lunatic Asylum for* 1860. By John Charles Bucknill, M. D., Medical Superintendent. Pamphlet, pp. 26.
12. *Twenty-third Annual Report of the Suffolk Lunatic Asylum for the Year* 1860. By John Kirkman, M. D., Physician-Superintendent. Pamphlet, pp. 38.
13. *Tenth Annual Report of the Wilts County Asylum, Devizes, for the Year* 1860. By John Thurnam, M. D., Physician-Superintendent. Pamphlet, pp. 51.
14. *Seventh Annual Report of the County and City of Worcester Pauper Lunatic Asylum for the Year* 1860. By James Sherlock, M. D., Physician-Superintendent. Pamphlet, pp. 82.
15. *Fifth Annual Report of the State of the United Lunatic Asylum for the County and Borough of Nottingham, and the Fiftieth of the Original Institution, formerly the General Lunatic Asylum, for the Year* 1860. By William P. Stiff, M. B. Lond., Physician-Superintendent. Pamphlet, pp. 29.
16. *Annual Report of the Royal Edinburgh Asylum for the Insane, for the Year* 1860. By David Skae, M. D., Physician-Superintendent. Pamphlet, pp. 40.
17. *Annual Report of the Royal Lunatic Asylum of Aberdeen, for the Year* 1860. By Robert Jamieson, M. D., Physician-Superintendent. Pamphlet, pp. 26.

18. *Thirty-third Annual Report of the Directors of James Murray's Royal Asylum for Lunatics, near Perth, June,* 1860. Pamphlet, pp. 103.

19. *On Potentiality and Actuality in Man.* By J. Stevenson Bushnan, M. D., &c. Pamphlet, pp. 4.

20. *Report of Cases of Insanity at Abington Abbey, Northampton, for the Year* 1859. By J. Prichard, M. D. No. IV. Pamphlet, pp. 32.

21. *What is Psychology?* By J. Stevenson Bushnan, M. D., (Reprint). Pamphlet, pp. 15.

22. *Endemic Degeneration.* By W. A. J. Browne, Commissioner in Lunacy for Scotland. Pamphlet, pp. 15.

23. *The Clinical Teaching of Psychology. A Valedictory Address.* By J. Crichton Browne, L.R.C.S.Ed. Pamphlet, pp. 23.

1. We always find great satisfaction with the annual reports of the Commissioners in Lunacy for England, bearing, as they unmistakeably do, the impress of much pains and carefulness in their preparation, nothing important being omitted, and nothing superfluous added.

The one now before us is the fifteenth, in which we have the state of the insane in England and Wales, as to number brought up to the 1st of January of the present year; and the number as to admissions, discharges, and deaths, during the year 1860.

Some changes have taken place amongst the Commissioners themselves since the last report, by the retirement of Mr. Procter, after serving 28 years as a paid legal member of the board, and now acting, it appears, in an honorary capacity thereon. We presume, however, that Mr. Procter has not thus changed places without having first secured his retiring allowance, to which he was justly entitled after his lengthened, and we believe we may add popular service, his general bearing in the fulfilment of his duties having obtained for him a large share of well-earned respect and esteem from all with whom he came in official contact. The vacancy thus caused has, according to the usual system of promotion in this department of the public service, been filled up by the elevation of Mr. Forster, the secretary, to a paid commissionership—a gentleman who, in his former sphere, by his courteous and affable demeanour, added in no small degree to the board's high character in public opinion.

We shall on the present, as on former occasions, afford our readers, in as succinct a manner as possible, the principal points contained in this report, under the following heads:—

1. COUNTY AND BOROUGH ASYLUMS.

The Commissioners state that no new public asylum had been opened for the reception of patients during the past year, but that in several counties additions were making to existing institutions. We regret to find this is the case, there being very few indeed, if any, of the county asylums already in operation that are not quite large enough; instead of extending them, and so far decreasing their usefulness curatively and otherwise, supplementary asylums on the cottage or "block" system should be erected, with a proper staff of officers, as the more humane, and ultimately, we make no doubt, the cheaper plan of providing for the increasing numbers of the insane.

Beds County Asylum.—In our review last year, we referred with much satisfaction to the liberal provision making in every respect for the efficient working of the Beds, &c., united counties' asylum, then in a forward state, for the admission of patients, and now in actual operation, so many as 323 being under treatment in that admirably appointed establishment since April last, under the medical superintendency of Mr. Denne.

Birmingham Borough Asylum.—This asylum is one of those which has outgrown its original capabilities, and to which the local authorities have proposed making additions structurally, but not to the grounds proportionally. This economical mode of procedure has been borrowed from the example, a wretchedly bad one, of the Surrey County Asylum authorities, whose persevering opposition to the purchase of additional land for a proposed increase of patients by hundreds we felt it our duty in our last review to animadvert upon as it deserved, and shall have again to do in this one. The Commissioners, in respect of this enlargement of the Birmingham asylum, most properly refused their sanction unless the lands were increased—a most reasonable requirement on their part, but, nevertheless, which has been continued to be opposed, the consequence being that the institution is seriously overcrowded, and the unhappily afflicted insane of that wealthy borough are left unprovided with suitable treatment, which tells badly indeed for the humanity of its money-griping and more highly favoured citizens.

Caermarthen.—So far back as the year 1858, plans with a site were sanctioned by the Home Secretary towards pro-

viding an asylum for the united counties of Caermarthen, Cardigan, and Pembroke; but owing to certain red-tape proceedings, and obstructiveness in various ways on the part of the court of quarter sessions, as detailed by the Commissioners, nothing to the present time has been done for the proper accommodation of the insane of the above counties, who, it seems, are most indifferently domiciled in so-called asylums at Haverfordwest and Briton Ferry. In the former of these, the Commissioners report that "a system of punishment had been resorted to, and that on several occasions a patient had been beaten with a leather strap as the only means of checking his violence." This is truly a most disgraceful and barbarous state of things, and loudly calls for the immediate interference of the executive, who most assuredly will be liable themselves to the severest censure, if they longer remain passive under the circumstances now referred to.

Cumberland Asylum.—In the course of the present year, the asylum for this county was expected to have been in operation, and possibly may be so ere this. It was very properly, under the recommendation of the Commissioners, arranged that its medical superintendent should be appointed whilst the asylum was in progress of erection, with the important object of all details and arrangements being carried out under his directions. This is the course which ought to be pursued in all similar cases, being plainly a common-sense mode of procedure, and the only way, in fact, in which such peculiarly circumstanced institutions as hospitals for the treatment of insanity can by possibility be rendered fit receptacles at their commencement for mentally afflicted patients. The selection made of a medical superintendent in this instance was a very judicious one, in the person of Dr. W. P. Kirkman, formerly the assistant medical officer of the Devon County Asylum.

Essex Asylum.—Here again we have another county asylum crippled in its operations for want of sufficient accommodation, a deficiency which it is contemplated to provide for by the erection of several detached cottages on its grounds, these having been added to lately by the purchase of several acres. If, what we must consider as a step in the wrong direction, existing asylums are to be increased in accommodation, it will certainly be a lesser evil to do so by the means of detached cottages in connexion with the parent building, rather than by adding to the latter, which is so exceedingly to be deprecated in whatever point of view it may be taken, and which we rejoice to see that the Commissioners are far from countenancing, much less encouraging.

Glamorgan County Asylum.—A new asylum for this county is in course of building for the accommodation of 301 patients. The plans were approved in September, 1860.

Rainhill County Asylum.—This is one of the three county asylums in operation for the large and populous county of Lancaster. It at present contains so many as 593 inmates, 484 of whom are deemed of the incurable class. Additions to it, accommodating 228 of the above, by means of detached buildings, were completed in July, 1860. It is under the efficient superintendence of Dr. T. Rogers.

Surrey County Asylum.—Our review in 1860 contained the proceedings of the Commissioners *versus* the Visitors of this asylum, the latter using their utmost endeavours to locate 1600 patients on a tract of ground barely sufficient for half that number. The Commissioners at that time defeated this utterly indefensible line of economy, by refusing their sanction to any increase of inmates without the land being increased in proportion. Had they acted otherwise, they would have been highly censurable for not carrying into effect the important powers vested in their hands. The report now before us states on this head:—

"Nothing has yet been done to provide the requisite additional accommodation for pauper lunatics belonging to the county of Surrey. At the date of our last report, plans for a new building to accommodate 660 male patients were under consideration. These plans, having been entirely remodelled, were ultimately transmitted by us to the Secretary of State, with an intimation that although they had been so far modified and improved, that they might receive his sanction, our objections to the enlargement of the existing asylum, without addition to the site, remained unchanged. In these circumstances, Sir George Lewis withheld his approval.

"In the month of June, the committee of visitors addressed the Secretary of State, inquiring whether he would approve the plans previously submitted, if the additional land proposed in 1858 to be purchased and rented were secured, or whether the erection of an entirely new asylum on some other site would be requisite.

"This proposition was transmitted from the Home Office for our consideration; and although retaining the opinion so frequently expressed, that the erection of an additional asylum on another site would be in all respects the most desirable, and, with reference to the ultimate interests of the ratepayers, the most economical course that the magistrates could adopt, we did not feel justified, considering the pressing want of accommodation, in interposing any further objections to the proposal.

"At the following general October sessions for the county, the committee of visitors very strongly recommended the purchase and

hiring of the additional land, as proposed in the year 1858; but the court declined to comply with the recommendation, and appointed a committee, 'with full powers to inquire into and report upon the site for a new asylum, and to make further provision for the pauper lunatics of the county.'

"The committee thus appointed commenced their inquiries forthwith, and various sites were soon after inspected; but up to the close of the year no final determination had been arrived at, nor has any report yet been made to the quarter sessions on the subject."

Here, then, is another most inexcusable difficulty thrown in the way of the due care and treatment of a multitude of patients, of all others the most deeply afflicted, and accordingly demanding our warmest and liveliest sympathies. Were we to judge of the humanity of Englishmen by this and similar instances of neglect and indifference pursued towards their insane brethren in humble life, we would be compelled to set it down at a very low ebb indeed. Such conduct is strongly indicative of an economy which, if not decidedly checked, would relentlessly sacrifice the nearest and dearest interests at its shrine.

Worcester County Asylum.—Further enlargements in this asylum are also the order of the day. A new female infirmary has been decided upon to accommodate forty patients, besides the erection of new water-works, the supply of water hitherto having been quite inadequate to meet the wants of a large institution in so essential an element for its comfort and health.

City of London Asylum.—In our last year's review it was stated, on the strength of the Commissioners' fourteenth report, that an institution, under the above designation, for the reception of about 300 patients belonging to the city of London, was in a fair way of being erected; but to our surprise we find all that has since been done was simply to reduce the intended accommodation to a maximum of 250, and, after a great opposition to its erection at all, there to leave the matter! For the wealthy city of London, "the glory of all lands," to huxter and peddle as to a paltry outlay of £50,000 for duly providing for its insane patients, and ultimately, after a year and more being expended after this ignoble fashion, literally coming to a stand-still, is almost beyond belief. Nevertheless, such is the case,—the Commissioners, in their present report, pointedly observing:—"We are still unable to report that any final arrangements have been made to provide proper accommodation for the pauper lunatics of the city of London."

Hanwell Asylum.—This county asylum of Middlesex is rapidly becoming a leviathan one, like its unwieldy sister at Colney Hatch. The original building has now been fully doubled by additions and alterations, which have rendered it capable of containing so many as 1743 inmates, a number that would require at least five medical superintendents to fulfil the arduous duties of an establishment of such enormous extent, but only provided with two, which is unreasonable and unjustifiable to the last degree. This kind of economy in the treatment of the insane, in reality, however, no economy at all, is anything but creditable in these days of progress and vaunted humanity.

State Asylum for Criminal Lunatics.—It is expected that this long-desiderated asylum will soon be ready for the reception of its special class of inmates. The Commissioners mention that a suitable site had been selected for the chaplain's residence, to which we take no exception; but we would have been glad to have seen that equal anxiety was felt by them for the medical superintendent being provided with an entirely distinct abode on the premises. Perhaps this is even so, as unquestionably should be the case, together with a more than ordinarily liberal salary for the serious responsibilities that will devolve upon him,—so serious, that he will be a courageous man indeed that will undertake them (but who had not been found at the date of the Commissioners' report, though they had repeatedly and constantly pressed the appointment being made by government), be the advantages and emoluments of the office what they may. We are glad to find that the Commissioners have insisted on the walls in the interior of the building being plastered, and not being left in the rough and unfinished condition in which the State Asylum for criminal lunatics at Dundrum was, and continues to be, by the parsimony of the Board of Public Works in Ireland, a standing discredit to them, and an offence to the eye, which immediately strikes every visitor, from the accumulated dust and other impurities filling up the crevices and roughnesses provided, it would have been supposed, for this special purpose.

The Commissioners make some just observations as to the necessity of distinguishing between the classes of the criminal insane to be placed in the New State Asylum, which is only calculated to receive 600; whereas, according to the table supplied in their report, the criminal lunatics in England and Wales amount to 788. Be the disposal of this latter number as it may, we conceive that the Act of Parliament establishing this State Asylum should be carried out in both letter and

spirit, and the ordinary asylums relieved altogether of all such inmates, otherwise the object held in view will not have been carried out,—that object being, that no patient should be within the walls of an asylum in ordinary, but those whom the local authorities can discharge of themselves:—

2.—REGISTERED LUNATIC HOSPITALS.

The next division of the Commissioners Report refers to details in connexion with what are termed "Registered Lunatic Hospitals," commencing with—

Bethlehem Hospital.—This hospital, having the command of an annual revenue of £17,400, besides £3000 annually from Government for the support of the criminal lunatics therein confined, and never more than, as the maximum number of patients, 400 of all classes, has no excuse for not being in the highest state of excellence in every respect, and in fact provided with every appliance and comfort calculated to be of service to its fortunately-circumstanced inmates.

The Commissioners' praise of it, however, is rather of a negative character. They mention improvements suggested by them as desirable to be carried into effect, which in some respects were, and in others were not attended to; the Report says—

"On the hospital being visited on the 10th June, 1859, it was found to contain 356 patients. The rooms and bedding were clean and in good order, and the upper galleries cheerful and comfortable; but the lower wards, although clean, were, from their structure and arrangements, cheerless and ill adapted to the treatment of recent and acute cases. It was suggested that the wire-work should be removed from the exterior windows of the lower female ward, and that the airing court of that ward should be planted with shrubs and flowers. No improvement had taken place in the male criminal wing; and it was recommended that increased means should be taken to relieve the monotony of the patients' existence by occupations and amusements."

And again, on occasion of a visit to it on the 16th November, 1860, it is observed:—

"The former drying ground has been converted into an airing ground, and the female airing-court No. 1 been laid out as a garden. The State Asylum is not yet ready for the reception of the criminal patients, and the wards of Bethlehem Hospital, therefore, remain as before noticed."

Yarmouth Military Hospital.—In the last, as well as former reports of the Commissioners, they reprobated in the strongest

terms, and not more strongly than deserved, the shameful fact that no proper provision had been made by the Government of the country for the due treatment and comfortable provision of insane military officers and soldiers. We have ourselves, in these annual reviews, repeatedly called attention to this most ungenerous and cruel neglect, and that too in the time of their greatest need, of the brave defenders of our country, our lives, and our liberties. To the present time this most disgraceful and scarcely credible state of things is permitted to continue. In our last review, we ventured to suggest that that devoted and untiring friend of the insane, Lord Shaftesbury, the chairman of the Commissioners, should bring the subject of this studied neglect under the notice of the Legislature. His Lordship, with his brother Commissioners, must now see the hopelessness of resting satisfied with annually showing up this apparently determined omission of duty on the part of the Executive; nothing short of an exposure of the whole matter in Parliament will be of any use, in order to have this grievous evil at once rectified; and, accordingly, we trust and hope that Lord Shaftesbury will take the hint, again respectfully given, and make the country acquainted, through the House of Lords, with the astounding fact, that "there is now no lunatic asylum for the treatment of insane officers and soldiers," who are farmed out here and there, as a source of profit to others, wherever they can be maintained at the cheapest rate; or, as stated in the forcible and cutting words of the present report:

"Some are *confined* [the italics are our own] in the Lunatic Department of Fort Pitt, Chatham; others (the officers) at Coton Hill, Stafford; and a large proportion of the men are under care at the licensed house called Grove Hall, at Bow."

Haslar Hospital.—This establishment, near Gosport, under the control altogether of Government, for sick and wounded seamen and marines, affords a portion of its buildings for the care of naval lunatics, officers and sailors, who happily are more fortunately circumstanced in this respect than the other and not less important arm of the service.

In April, 1860, when last visited by the Commissioners, it contained 142 patients (29 officers and 113 men), at an average cost each per diem of 1*s.* 9*d.*, or 2*s.* 2*d.* including salaries. The grounds are stated to be "very spacious and pleasant, running down to the borders of the sea, and commanding an uninterrupted view of the Isle of Wight and Spithead."

St. Luke's Hospital.—The Commissioners have not hitherto been enabled to report in the most favourable terms of the

condition of this hospital, one in the worst possible site for such an institution, and accordingly recommended by them to be superseded altogether, by the erection of a new one in a more appropriate locality—a recommendation, however, not likely to be attended to, unless compulsion can be brought to bear upon its immovable and unimproving board of governors. On the present occasion the Commissioners do not report much more favourably of it than before, as may be inferred from the following extract:—

"The Commissioners learned that some addition had been made to the means of washing, but that the patients still did not wash in their bed-rooms; that no attempt had been made to establish a branch hospital (in the neighbourhood of London); that more than half the male patients were allowed to go out on their own parole, and that some of the females walked out with the nurses; and that the gallery floors were about to be covered with a kemptulicon (?). Some additions to the diet had been recommended, and that there should be means for more regular association among the patients."

III.—Statistics.

Statistics—County and Borough Asylums.—According to the statistical tables supplied in this report, which are both numerous and valuable, we find that the number of County and Borough Asylums in actual operation in England and Wales on the 1st of January, 1861, amounted to 42, containing in the aggregate 18,587 inmates, of whom but 1865 were deemed curable; that the total number of recoveries during the year 1860 was 2032 (894 males, 1138 females); ditto of deaths, 2195 (1281 males, 914 females); ditto of suicides, 11 (7 males, 4 females).

Licensed Lunatic Hospitals.—The number of Licensed Lunatic Hospitals was 17, containing 2144 inmates; the number of whom deemed curable was 358. The recoveries in them during the year 1860 were 330, the deaths 149, and suicides 2.

Metropolitan Licensed Houses.—The number of these was 38 (13 having females holding licenses, solely or in partnership), with a total number of inmates on the 1st of January, 1861, of 1953, of whom 268 were considered curable. The recoveries for 1860 were 250, the deaths 214, and the suicides 5.

Provincial Licensed Houses.—These numbered 51 (11 of which were licensed to females), and had a population of inmates remaining in them on the 1st January, 1861, of 2150, of whom 315 were deemed curable. The recoveries during the year 1860 numbered 263, the deaths 191, and suicides 4.

GENERAL SUMMARY.

Patients remaining 1st January, 1861.

	Private.			Paupers.			Total Lunatics.	Number deemed Curable.		
	M.	F.	Total.	M.	F.	Total.		M.	F.	Total.
County & Borough Asylums, . .	108	104	212	8270	10,105	18,375	18,587	761	1104	1865
Hospitals, ...	173	813	886	127	131	258	2144	149	209	358
Metropolitan Licensed Houses,	727	653	1380	163	410	573	1953	109	159	268
Provincial Licensed Houses, . .	921	717	1638	284	228	512	2150	157	158	315
Totals, . .	2829	2287	5116	8844	10,874	19,718	24,834	1176	1630	2806

Workhouses.—The report enters with much minuteness into the visitation of workhouses by the Commissioners, those inspected by them during the past year amounting to 229, with a total number of lunatics of 5353. The Commissioners state their decided conviction as to the necessity of providing, by legislative enactment, for the better care and treatment of such harmless imbeciles as might, under some special law, be conveniently retained in workhouses; and more especially for putting a stop to the practice which at present so extensively prevails of sending insane patients generally to workhouses, instead of to asylums, even when there is ample room in the latter.

It is observed that the rate of mortality among the insane in workhouses is, as far as can be ascertained, higher than in the public asylums, and that, during the past year, several serious or fatal occurrences had come to the Commissioners' knowledge. In the Stapleton Workhouse, for instance, the matron's life was sacrificed in a conflict with a patient admitted in a highly excited state; and in the West Derby Workhouse an insane female inmate died in consequence of chloroform administered to her by the master. Cases are also given of abuses of more or less gravity in the Holbeach, Bethnal-green, and St. Margaret and St. John's, Westminster, Workhouses, in respect of their insane inmates—all of which, as the Commissioners most justly remark, "strongly illustrated the evil of *the present system* of sending the insane to workhouses and retaining them therein."

Colney Hatch Asylum.—The Commissioners devote a large space of their report to the recent "Colney Hatch prosecution," instituted in consequence of the sudden death of a male

patient therein, occurring, as was alleged, from the violent treatment he had received from two of the attendants, and for which they were tried before the Central Criminal Court, the trial resulting in an acquittal. The deceased patient was plainly of a most ferocious and homicidal disposition, and had attempted to strangle the master of a workhouse prior to his admission into the Colney Hatch Asylum; and whilst an inmate of the latter, and a few days before his death, had placed the life of an attendant in imminent peril by nearly strangling him also. We need not here further allude to this painful matter, all the facts of the case having been already before the public. We must not, however, dismiss the subject without expressing our deep concern that in connexion with it a long-tried, highly qualified, and distinguished member of the profession, Mr. Tyerman, the Medical Superintendent of the Male Department of Colney Hatch Asylum, should have resigned his appointment on account of this unfortunate and much to be regretted affair. He has the sympathy of all his brethren in retiring from one of the most arduous, anxious, and irksome positions in which a professional man could have been placed—one which, from the magnitude and enormous amount of actual labour, together with a never-ending anxiety inseparably attached to it, must have been most trying to mind and body to bear up against; and now, after all his years of toil and endeavour, his reward has been a virtual loss of a situation, for which he was never half remunerated, ably and efficiently as he had, under the circumstances, fulfilled its harassing duties.

Increase of Insanity.—We must conclude this notice of the Commissioners' Fifteenth Report, which has already exceeded our limits, by giving the following extract on a question now so much mooted, and in which the public interests, no doubt, are deeply concerned. We allude to the supposed increase of insanity in these countries, and in connexion with which we entirely concur in the Commissioners' views:—

"The great accumulation of pauper patients, as shown by our own records and those of the Poor Law Board, is mainly attributable—

"1st. To the more complete collection of annual returns, formerly very defective in this respect.

"2nd. To the detection and registration of cases formerly left unnoticed.

"3rd. To the removal of a larger proportion of patients from localities where they were exposed to causes of death into asylums favouring the prolongation of life.

"4th. To the effect of sanitary regulations in asylums, of improved diet, and of various means of sustaining the health and promoting the longevity of the entire body of inmates.

"5th. To a like effect on those out of asylums, from the removal of large workhouses to more healthy sites, and from the medical visitation of such of the insane paupers as are neither in workhouses nor asylums.

"Though it might, on the other hand, be fairly supposed that the increased proportion of cures in recent cases sent to asylums, caused by the improved modes of treatment now adopted, would have had the effect of diminishing the aggregate numbers resident, this latter cause of decrease, in the comparatively few recent cases admitted, has apparently been more than counterbalanced by the prolongation of the lives of the many chronic cases brought under care. And as, in certain localities, unprovided with any recognised means of sheltering their insane paupers, we have shown that their seeming proportion to the population is small; so, if we look to other countries, we shall find that, in proportion to the amount of the provision made by the State will be the apparent ratio of the insane to the population. Considerations such as these furnish abundant reason for discrediting the statements which foreign authors have founded on our returns, to the effect that the inhabitants of this country are more liable to insanity than those of any other civilised state.

. . . . . .

"There can be no doubt that the establishment of our board has led to the detection of a number of uncertified patients, formerly placed singly in lodgings with strangers; and we have in several instances become aware of the existence of unlicensed houses, where two or more patients were received and detained without certificates or registration. There is also good reason to believe that a not uncommon practice exists of sending certain classes of the insane to reside in ordinary boarding houses.

. . . . . .

"Finally, it is to be remarked as respects the class of private patients, in reference to the circumstances that their number in licensed houses has fallen considerably during ten years, and that in asylums generally there has been no increase; that many old-standing cases, not before reported, are included in the returns as now made; and it is evident, therefore, that a just comparison of the relative numbers at the beginning and end of the period under review can only be made by deducting from the present number the cases formerly omitted. By doing this, we arrive at the conclusion that the proportion of private patients in the various asylums of England and Wales has diminished during a period of ten years; and this, notwithstanding the improvements effected in those houses during that time, rendering them more comfortable and cheerful, and increasing the inducements to send patients into them.

. . . . . .

"It would appear, then, upon a review of the whole subject, that while, in the ten years ending January, 1859, the number of private patients in the houses placed under our supervision has diminished, the number of pauper and State patients has increased in a remarkable degree; that this increase is attributable to the introduction of a better system of bringing such cases under notice and care; *and that we have not found any reasons supporting the opinion generally entertained that the community are more subject than formerly to attacks of insanity.*"

2. The third annual report of the "General Board of Commissioners in Lunacy for Scotland," is, like its predecessors, a blue book of imposing size; and from the perusal we have been able to give its contents, we are enabled to say that they are full of the greatest interest, and clearly indicate that the Commissioners are quite up to the mark in their important vocation, as this report so fully testifies.

They refer to the Act under which they perform their functions, having been generally expected to have undergone amendment during the last Session of Parliament in such a manner as would have materially retarded the progress of the improvement noticed in their former report; but that, notwithstanding this uncertainty of renewed legislation, active steps were taking for the erection of district asylums under the provisions of the existing law, a line of procedure which they felt satisfied was the right one for facilitating the removal of patients from unfavourable home influences, and placing them under humane and appropriate treatment.

The report refers to a considerable increase in the number of pauper lunatics, stating that on the 1st of January, 1858, they were returned to their office as amounting to 4737; on the 1st of January, 1859, to 4980; and on the 1st January, 1860, to 5226, thus showing an increase of 243 in 1858, and of 246 in 1859. During the year 1859 there was a decrease of 36 private patients, and an increase of 172 in the pauper class.

Single Patients.—With regard to private patients, living singly, it is stated that there are no reliable means of ascertaining their numbers, but that in the course of the Commissioners' investigations they had become cognizant of the existence of 1887, namely, 1041 males, and 846 females, and, although considerably within the real amount, as they had reason to believe, they had adopted this number in their last report, and continued it in the present one, from the fact of being without the means of determining the changes which had

occurred from the addition of new cases, or the subtraction of old ones by recovery or death.

Discharges of Patients.—From the returns received by the Commissioners, it appeared that 372 patients had been discharged, not recovered, from asylums in 1859. That of those 293 were private patients, and 79 paupers, regarding whose after-disposal there were no means at command of obtaining information, which strikes us as being rather strange.

The report goes on to say:—

"The total number of the insane in Scotland on 1st January, 1860, including the private patients as approximatively estimated, amounted to 8084, distributed as follows:—

				Private.			Pauper.		
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
In Public Asylums, ...	1355	1277	2632	402	371	773	953	906	1859
In Private Asylums, . . .	349	503	852	84	112	196	265	391	656
In Poorhouses, ...	349	517	866	. .	2	2	349	515	864
In Private Houses, ...	1869	1865	3754	1041	846	1887	828	1019	1847
Total, . . .	3922	4162	8084	1527	1331	2858	2395	2831	5226

"It appears from this table, that of 8084 insane persons in Scotland, 2858 were supported by private funds, and 5226 by parochial rates. On 1st January, 1859, the corresponding numbers were 2898 and 4980. The increase in the numbers of the insane thus appears to be restricted to pauper lunatics. It is found, however, in all the different classes of establishments, in public and district asylums, in private asylums, and in lunatic wards of poorhouses. On the other hand, the number of private patients has diminished. The result is probably in great measure due to the transfer of a number of the indigent insane, from the class of private patients to that of paupers."

Definition of Lunacy.—Under this head the Commissioners, at much length, show the difficulty of determining what constitutes a lunatic in the eye of the law. This uncertainty prevents uniformity in the manner of administering the Act in different counties, the views of the sheriffs (officials corresponding in some measure to our chairmen of quarter sessions) of the several counties being various on this most important point. No responsibility attaches to these officials for any consequences that may ensue from their diametrically opposite decisions, which seems to be such an anomalous and inconvenient state of things, that it ought to be rectified as immediately as possible by proper authority.

District Boards.—The Commissioners observe that the local or district boards are generally quite alive to the necessity of carrying into effect the provisions of the law for the erection of asylums, thus strongly contrasting with the supineness and disposition to thwart the law in this respect of some of the local authorities in England.

Expenditure for Pauper Lunatics.—The total expenditure incurred for patients in 1859 was £88,145 5*s.* 8*d.* The average daily expenditure for each pauper lunatic is given as 10¾*d.* for the whole of Scotland, which, however, varies greatly in different districts, viz., from a maximum of 1*s.* 2*d.* (Dumbarton district) to a minimum of 5¾*d.* (Caithness district), differences dependent in some measure on the varying proportion of patients sent to asylums, the expenditure being accordingly higher where this proportion is greatest.

Chronic Cases.—The Commissioners, we think, make some exceedingly suggestive remarks, which are well worthy of the deepest attention, in reference to the disposal of the increasingly large numbers of chronic cases in the public asylums. We quote their own words, as follows:—

"We will not, however, delay expressing our opinion that systematic measures should be adopted for preventing the accumulation of chronic cases in asylums. This, if allowed to go unchecked, experience shows, will necessitate either the neglect of recent cases, or the undue extension of asylum buildings. There can be no doubt that the chief object of an asylum should be the treatment of the insane, with a view to their restoration to sanity. A most important secondary object is certainly the proper care of incurable patients, more especially of those who, for various reasons, cannot be restored to liberty; but we should, nevertheless, guard against the permanent detention of such as, under certain precautions, might be allowed to be at large. The accumulation of large numbers of the insane under the same roof is, in many respects, a convenient arrangement; but it is unnatural and artificial, and is distasteful, and probably also hurtful to many patients. At all events, the detention of the insane in those establishments should be a matter of thoughtful consideration in each individual case; and the question which the superintendent should seek to determine is, not whether the insanity of a patient is such as to warrant his continued detention, but whether it is such as to render his discharge impossible or impolitic. We are strongly impressed with the conviction that it is highly desirable to bring the propriety of detaining patients in asylums periodically under review, and we are therefore of opinion that the authority for their detention should be periodically renewed. The law of Holland authorizes the detention of a patient at first only for a period not exceeding three months, and

afterwards from year to year, on satisfactory evidence that adequate reasons exist, beyond mere unsoundness of mind, for warranting prolonged detention."

Remuneration to the Attendants in Lunatic Asylums.—The able and practical manner in which the Commissioners discuss the question as to the fitting amount of wages to be paid to the immediate attendants on the inmates of asylums is altogether to the point, and eminently deserving of the best consideration. It cannot but be admitted that to obtain the services of faithful and trustworthy subordinates, to carry out the details of such peculiarly-circumstanced institutions as asylums, a liberal amount of wages, with liberal domestic treatment, should be the standing rule in all such establishments, but this, however, is notoriously not the case; the consequence of which is, that the patients themselves must be and are the sufferers, even from the very fact of frequent changes amongst the attendants, who, of course, will only remain in the performance of duties, of all others the most trying and distasteful, so long as they are unable to "better themselves"—and who can blame them for so acting? It will be found sound economy to hold out every inducement to good attendants to continue in their situations, as well as greatly tend to the comfort and benefit of the patients themselves, and their more humane treatment in every respect. The Commissioners thus forcibly express their views on this important subject, with which we reluctantly close our notice of their present very able report—one, however, which, from the extreme parsimony of its distribution, must be a sealed book to those who of all others should be supplied with copies, as is the case with the English Commissioners' report, we mean the medical superintendents generally, and who have just grounds of complaint on this head[a]:—

"One of the greatest difficulties under which the superintendents and proprietors of asylums labour is that of securing intelligent and trustworthy attendants. The occupation is one which requires for its satisfactory discharge high moral qualities; for in no other, perhaps, are the duties more irksome, and self-denial more necessary. A superintendent, if disturbed by the duties and cares

[a] We feel it only due to the Commissioners themselves to state, that this withholding of their very valuable report from a circulation which, on public grounds, should be the most liberal, is not their fault, but rather that of the Executive—an invidious mode of procedure, for which the latter should be required to explain. The reports of the English Commissioners, and, we may add, the Irish also, are not thus held back, but, on the contrary, largely distributed, as official documents of this particular class so properly should on every account.—Rev.

of his office, has it in his power to seek the privacy of his own apartments; but an attendant has no such choice, and must remain with his patients day and night, without for a moment allowing his vigilance to relax. To command the permanent services of efficient attendants, a high rate of payment, or other equivalent advantages, must therefore be necessary. But our returns show that the wages of attendants are by no means such as we might infer should be paid for services requiring the association of considerable intelligence with good temper, firmness, forbearance, honesty, and sobriety. Accordingly we find, that in public asylums 62 per cent. of the male attendants receive less than £30 annually, and 53 per cent. of the female attendants less than £12; that, in private asylums, 84 per cent. of the male attendants receive less than £30, and 84 per cent. of the female attendants less than £12; and that, in the lunatic wards of poorhouses, 56 per cent. of the (paid) male attendants receive less than £30, and 35 per cent. of the (paid) female attendants less than £12. The average rate of wages is thus lowest in private asylums, and highest in poorhouses. As private interests have a powerful tendency to limit expenditure, this result, as regards the former class of establishments, might have been expected; but it does not at first sight appear why the rate in poorhouses should be higher than in public asylums. The explanation, however, is not difficult. A large proportion of the attendants in poorhouses are ordinary paupers, who receive no payment; and hence, such as are paid receive, on an average, higher wages than the attendants in public asylums. On the whole, the wages of attendants in asylums are not equal to those of ordinary domestic servants. Men-servants in private families, for instance, receive much better payment than the attendants even of the highest class of patients in asylums; and ordinary domestic female servants are also, on the whole, better paid than female attendants. As might be expected, therefore, the changes in the staff are frequent; a large number leave within the first six months, and comparatively few remain more than two or three years. Thus, in the public asylums, 53 per cent. of the male attendants, and 64 per cent. of the female attendants, do not complete two years' service. In the private asylums, the proportion of attendants who leave before completing two years' service is 70 per cent. for males and 80 per cent. for females; and in the poorhouses, of the paid attendants, this proportion is 70 per cent. for males, and 75 per cent. for females. It is obvious that this state of matters is far from being satisfactory. There is no doubt that it is not easy to find the combination of qualities necessary to constitute a good attendant; but it is equally certain that the present inducements are insufficient to dispose persons of superior qualifications to undertake the work."

3. The association of medical officers of asylums and hospitals for the insane have every reason to be proud of the

continued high character maintained by their excellent and practical journal, that of "Mental Science," so judiciously and ably edited by Dr. Bucknill. The numbers for the current year contain, each and all, papers of varied excellence and importance, a careful perusal of which will amply repay the readers, as well specially engaged in the treatment of mental disease, as in ordinary professional practice. Indeed, for the latter, we know of no publication devoted to periodical medical literature of this kind, with the contents of which they ought to make themselves more particularly acquainted than this one, as by doing so they will find subjects treated upon that they ought to be familiar with, not knowing when an occasion may arise in private practice which will require them to act with confidence and decision. In the issue for January of the present year, are "Croonian lectures on the pathology, morbid anatomy, and treatment of insanity," delivered by Dr. A. J. Sutherland, at the Royal College of Physicians, a name quite sufficient to carry much weight and authority with it as to the matter of those valuable and practical lectures.

A paper by Dr. Conolly, "on the prospects of physicians engaged in practice in cases of Insanity," is, like all Dr. Conolly's writings, written with much ability and cogency. We wish we could find room for an ample transcription into our columns of its valuable contents; but we must be satisfied with but one short extract, in the full truth of which *all* practitioners devoted to the treatment of the insane will have, unfortunately, only too much cause to agree:—

"A certain wantonness of legislation has been exercised on all medical men devoting themselves to the cure of the insane, and their name has received a brand from which their improved character ought to have been a protection. They are expiating the offences of their forefathers. Their best attempts have been made with small encouragement, and their labours in the exercise of their profession stigmatized as venal. Nothing has been done, and nothing seems to be dreamed of, calculated to give encouragement to medical men practising in insanity, or to students who ought to be qualifying themselves for exercising this branch of the medical profession. A few clauses in an act of parliament bearing on these neglected points might be really serviceable, beneficial to the insane, and encouraging to the continued exertions on which the safety of the insane depends."

The same writer has a feeling letter on idiot schools, addressed to Dr. Browne, of the Scotch Board of Lunacy, directing that gentleman's attention to the happy advance made in England on behalf of that hitherto much neglected class;

and hoping that Scotland, through the instrumentality of Dr. Browne, who has been taking a deep interest in its amelioration in that country, will soon see the commencement there of an idiot school like the Earlswood one, for the benefit of those poor outcasts of society.

Dr. Lockhart Robertson supplies a good paper, containing suggestions respecting a "Uniform System of Asylum Statistics;" the Rev. W. G. Davies one on "Logical Psychology." And the management of the Irish District Asylums, in connexion with the Maryborough Asylum investigation by Government, is discussed in an excellent editorial article.

The number for April has a continuation of the valuable "Croonian Lectures," by Dr. A. J. Sutherland, with papers by Mr. J. C. Browne on the "History of Psychology;" Dr. Sibbald, "On Gheel and Cottage Asylums;" Dr. W. A. F. Browne, Commissioner in Lunacy for Scotland, on "Endemic Degeneration;" "Animal Magnetism," from the French of M. Alfred De Maury; "German Psychology," by Dr. Arlidge; "Suicide and Life Insurance," by Dr. Davey; "Case of Homicidal Mania, with Remarks," by Dr. L. Robertson; "Licenses and Certificates of Insanity," by Dr. Conolly; and, lastly, an able and interesting "Quarterly Psychological Review, and Notes on Books," by Dr. Bucknill, the editor.

The number for July contains a similar editorial paper to the last-mentioned one, together with Dr. Sutherland's "Croonian Lectures," continued; a review of the "Third Annual Report of the Commissioners of Lunacy for Scotland;" the "Line of Life," by Dr. H. Maudsley; "The Eastern or Turkish Bath," by Mr. Erasmus Wilson; "Notes on Idiocy," by Dr. P. M. Duncan; "On remissions in the Course of General Paralysis," by Dr. A. Sauze; "On the Sedative Action of the Cold-water Sheet, in the Treatment of Recent Mania," by Dr. L. Robertson; and "On General Paralysis," by Dr. H. Tuke, whose former communications on this distressing and hitherto irremediable finale of insanity we were enabled to speak of with every commendation—a character which the present one equally well merits.

The October Number of the Journal has so lately come before us, that we have had barely time to glance at its more than usually interesting and valuable contents. It opens with a full official report of the stated annual meeting of the Association, of which this Journal is the organ, held in August last, in this metropolis, being the first time for its members to meet in Ireland. The attendance, we are glad to find, proved to be large and influential, and the proceedings which occurred

were of a very practical and important kind. The valedictory address of the retiring president, Dr. Bucknill, was in excellent taste, and much to the purpose, as the following *précis* of its contents will evidence:—

Lunacy Reform.—On this head Dr. Bucknill referred to the promises made by our lawmakers, of a comprehensive scheme of lunacy law reform, after two years of preliminary investigation before a Select Committee of the House of Commons, having been left entirely unfulfilled in their hands, a result proving that the outcry which three years ago was made by the newspaper press against almost every body and everything connected with the insane, was as evanescent as it was senseless.

Detention of Chronic Cases.—The speaker then called attention to the imputation of the Commissioners in Lunacy for Scotland in their last report, to the effect, that uncured patients were detained in public asylums as a matter of routine, and simply because they were not cured—a routine, however, which, Dr. Bucknill observed, arose from the difficulty of not knowing where to place uncured patients under circumstances that would not be absolutely injurious to them; and that the time appeared to have fully arrived to solve, if possible, the question of finding suitable provision for the transference from public asylums of harmless and easily manageable mental cripples—a question which was much mixed up with the present largely agitated one of the fitness of cottage treatment for the insane.

Colony of Gheel.—Dr. Bucknill observed that not a little had been said and written about the colony of Gheel, but enough had not yet come to light respecting it, there being still required such an impartial description of it as would enable an unbiassed judgment to be formed upon the extent to which that system might be made available for our own purposes; and with this object he suggested to the Association the appointment of a committee of their own body to visit Gheel, and thoroughly to investigate its present condition, when possibly it might be found that an asylum was, after all, a needful instrument in the care of the insane; and that, instead of scattering lunatics over the face of the country, it would be better to scatter them over a large asylum area having what is termed, the separate block system in operation within its walls.

Superannuation Pensions.—Dr. Bucknill next called the special attention of the Association to a question which was very personal to themselves, and which would require the exertion of their utmost personal influence. It was the necessity of the

retiring pensions of superintendents being granted in such a manner as would not be derogatory to their professional position; namely, as a rightful claim, and not as an act of grace, and of such amount as would not be inadequate to their public claims. It could not be denied that the superintendents had peculiar claims for adequate retiring pensions, after long service in the discharge of duties which of all others were to the last degree painful and irksome, and of never-ending responsibility. The salaries of medical superintendents were so modest, that they could not accumulate property therefrom; so that, in fact, there was nothing to compensate the medical man who had grown old in asylum work and anxieties, except a liberal retiring pension as a right, and not on the humiliating condition that their services and their reward would be submitted to the indirect control of boards of guardians, whose general treatment of the medical profession was so notorious as not to need being commented upon.

Injuries to Patients.—The speaker dwelt on this subject with much earnestness, as one deserving the best consideration of the Association. He alluded to the injuries received by patients in asylums, which in some recent instances had proved fatal, and had been the subject of criminal prosecutions of attendants. That 30,000 known cases of insanity could be managed without injuries sometimes occurring, would be altogether unreasonable to expect; but even so, every possible means should be constantly adopted to prevent the occurrence of accident and injuries to the helpless beings entrusted to the charge of an asylum; and, apart from the great readiness of the public to attribute blame to superintendents for all that may go wrong in asylums, there could be no possible motive on their part either to conceal or to extenuate any harsh or cruel conduct of the attendants. Feelings of humanity and self-interest would urge superintendents to be foremost to prosecute evil-doers; and no doubt each of their body, Dr. Bucknill observed, would always be found most ready to do so. But it must be admitted that prevention was better than retribution; and in order to prevent to the utmost the occurrence of injuries or accidents within the walls of an asylum, it was a *sine qua non* that there should be not only a sufficient, but an abundant number of attendants—a supply so abundant that the very show of their overwhelming force would, in almost every case, be sufficient to overcome the resistance of violent and refractory patients. However, was it not the fact that the demands made by economists for the management of asylums with the smallest number of attendants were so urgent and exacting, that

the non-restraint system had necessarily been surrendered; and that when, for emergencies, there ought to be at least four or five attendants at command, there were only one or two allowed, who of course could be no match in personal strength for the fierce, reckless, and irresponsible maniac with whom they had to contend, at the peril of their own lives? This cheap rate of management was more and more pressed upon superintendents by the local authorities; and hence injuries and accidents, with a departure from the non-restraint principle, must be the order of the day. Another serious evil in asylum government was this, that the superintendent found rivals to his authority in the matron, or in the steward; or, what is equally bad, if not worse, in the meddling interference of committees and boards of governors, refusing to him his position as the unquestioned master and head of his establishment; and this to such a degree, as to make it impossible for superintendents to maintain that kindly but strict discipline which would, more than anything else, conduce to the good conduct of the attendants, and the comfort and safety of the patients.

Dr. Lalor's Address.—The above is a mere outline of Dr. Bucknill's excellent address on retiring from the presidential chair, which was then occupied by Dr. Joseph Lalor, the new President, who proceeded to read his inaugural address,—one which did him infinite credit for its great ability and enlightened views, and in which he forcibly pointed out the connexion between medical and mental science, as also that the claims of medicine to deal with disordered intellect should not be disputed by any one who admitted the well-known but mysterious connexion between mind and matter. He expatiated with much effect on the connexion between social science and the science of medicine and psychology, showing that that connexion was broad and obvious. Also, as regarded the administration of justice, and the laws relating to property, &c., &c., Dr. Lalor clearly proved that the services of both the general and the psychological physician were indispensable. Dr. Lalor, after suggesting the desirableness of a strenuous effort being made by the real friends of the insane poor to have their care and maintenance provided for by the state, out of the state funds—a suggestion in which we entirely concur—then referred to the position of the medical superintendents of the public hospitals for the insane, being necessarily a subject of paramount interest to an association established for the improvement of those important institutions, as well as for the acquisition and diffusion of more extended knowledge of insanity, and its scientific treatment. And, in connexion with this

branch of his eloquent and well-conceived address, Dr. Lalor made special allusion to the district hospitals for the insane in Ireland being unfortunately retarded in their onward course of improvement by the continuance of rules for their government long since fallen into desuetude in every other country holding any position in the ranks of psychological medicine; and concluded by saying, that the Irish superintendents stood pledged by the ties of gratitude to work for the promotion of the welfare of their English and Scotch brethren, as well as for their own, satisfied that all were inseparably united with one another, and with the interests of the afflicted patients, which it was no less their duty than their pride and anxiety to watch over and protect to the utmost.

A very important subject of debate during the meeting was the continued unsatisfactory state of the superintendence of the district asylums of this country, which eventuated in the adoption of a resolution, *unâ voce*, to the effect, that the medical and moral treatment of the patients could only be efficiently carried out under the superintendence of the resident physician, with an earnest recommendation that, in the promised revision of the existing Privy Council rules, this principle should be fully recognised; and, further, that the visiting physicians should for the future be simply consultants, enjoying still, however, their full salaries.

In connexion with the resolution here referred to, the following is an extract from the report contained in the Journal of a deputation of the Association to the Chief Secretary for Ireland, Sir Robert Peel, Bart., M.P.:—

"It is a source of gratification to me that circumstances render it unnecessary to occupy much of your valuable time in details or arguments in support of the first part of the resolution, which lays down the principle which, in the opinion of the association I represent, should regulate the position of the resident physicians of lunatic asylums in Ireland. I am happy to think that for this purpose it is sufficient to refer you to the conclusion come to by the majority of the Parliamentary Commissioners of Inquiry into the state of Lunatic Asylums in Ireland, who, after taking the fullest evidence in all parts of Ireland from the most competent witnesses, and after the most patient investigation of the question, expressed their opinion at page 9 of their report in the following words:—'We are all of opinion that the resident physician should have charge of the asylum, and be responsible for the treatment of the inmates as regards their insanity. Four of us consider that the resident physician should be solely responsible for the treatment of the patients, both as regards their bodily health and their mental diseases, but that he should be assisted, when necessary, by a visit-

ing physician, whose duty, however, should be confined to cases where his attendance may be required in consultation by the resident physician.' When I consider that this is the recommendation of the medical members of the commission, who have had large personal practical experience of the subject, and who have obtained a high reputation and promotion in consequence, I cannot think that you will allow it to be outweighed in your mind by the single opinion of a gentleman who, however high his character may be in some other branches of the profession, has had so few opportunities of acquiring knowledge in this. I therefore trust that you will not deem it desirable that I should go over ground so well beaten. It would not be in unison with those kindly and benevolent feelings which have ever distinguished the profession to which I have the honour to belong to forget our brothers, the visiting physicians, and it is therefore with pleasure that we find them provided for, in the recommendation of the Commissioners, as consulting physicians.

"The portion of the resolution which I submit, which has reference to the visiting physicians, is meant to convey not alone the expression of the association of their participation in the opinion of the Commissioners as to the public advantage of having consulting physicians attached to Irish lunatic asylums, but of the injustice it would be to the gentlemen who fill those offices at present to trench upon their pecuniary emoluments. Any differences which may have arisen in some asylums between the resident and visiting medical officers have been, as I consider, the result of the false position in which those officers have been placed towards each other, from the want of rules to define their duties, and for the promulgation of which the time has now happily arrived. I allude to the absence of such rules to explain circumstances which, without such explanation, might make an unfavourable impression on your mind either on one side or on the other, and not as intending in the remotest degree to cast blame anywhere. Such occurrences are a necessary consequence of the progressive principle of improvement which characterises all the institutions of our empire, and to which we are proud to refer as a proof of wisdom, and as the basis of the solidity and the permanency of our progress. Similar difficulties have existed in English and Scotch asylums, and have been surmounted there, as here, only gradually and by successive steps. In superintending and in guiding the course of improvement in the treatment of the insane in this country, it is no disparagement to our inspectors that they have followed the principle which wisdom proved to lead to safety and to permanency in both English and Scotch asylums, whilst the successive steps in the march of progress have been fully and ably set forth in the reports of those gentlemen, which, for variety of information and for the copiousness of their statistical returns, will, I think, bear favourable comparison with similar reports in any other country."

This is so manifestly a foregone conclusion of what is required in the district asylums, that it is almost a waste of words to enforce the point further, the more especially as we discussed this matter, and enunciated our opinions thereon, in our previous reviews on insanity.

The other papers contained in this number of the Association's Journal are the following, which we can only find room to enumerate on the present occasion:—"Five Cardinal Questions on Administrative Psychiatry," by Dr. J. Mundy; "The Scientific Plan and Principles of Medical Psychology," by Dr. J. S. Bushnan; "Cases of Death in Epilepsy from Suffocation, caused by the regurgitation of Food from the Stomach into the Larynx," &c., by Dr. Joseph Lalor; "Some results of Night-nursing, being a record of the Wet and Dirty Cases in the Sussex Lunatic Asylum, Hayward's Heath, during the first six months of 1861," by Dr. L. Robertson; "Vital Statistics, and Observations on the Causes of Death amongst the Male Patients in the County of Somerset Pauper Lunatic Asylum, from an Analysis of 295 post-mortem examinations," by Dr. Robert Boyd; "On the Subcutaneous Injection of Morphia in Insanity," by Dr. W. C. M'Intosh; "Cause in Lunacy, Reduction of a Will;" "Association Intelligence."

4. We have here an old acquaintance, with a somewhat changed form,—an additional title, that of "Medical Critic" having been assumed contemporaneously with this new issue of an already well-known serial. Whether this change indicates a substantial novelty of element, as well as an improvement in *materiel*, is a question to which, perhaps, the readers of the periodical in question may apply a diversity of solutions.

The Journal, as now presented to the public, is certainly increased in bulk, and its contents are of a more multifarious nature than under its former title; but we are bound to add, that some of the papers which form the contents of the numbers before us appear strangely allied to a Journal professedly and avowedly devoted to medical and psychological pursuits. We allude to those by Dr. Latham, "On the Exposition of the Principles and Details of the Syllogism;" "On the Structure of the Inductive Syllogism and its Correlation to the Deductive;" and that of Dr. Ingleby, "On the Distinction between Analytical and Synthetical Judgments."

We make this remark, however, in no disparagement of the papers themselves, which appear to be very creditable in their peculiar line.

In still more decided terms of exception as to their admis-

sibility to such a Journal, we are compelled to notice certain articles which seem to be systematically introduced into these numbers. In the January number we meet with "Specialists and Specialities," and "The Wear and Tear of Medical Life;" in No. II. (April), we find "Professional Tricksters," "Honoraria," "The Art of Rising in Physic;" in No. III. (July), occur "The Vacation;" and an article named "Three Thousand a Year"—not one of which, in our judgment, should be found in a Journal seeking to attain a high rank; or, in point of fact, entitled to any rank as an exponent of science. The writers of these productions profess to reveal certain arcana in the quackery of the medical profession, which, for the honour of the same, we are constrained to hope and believe to have been indited under the influence of a fervid fancy, rather than the result of experience and the record of reality. That quacks and charlatans are to be found in the medical, as well as indeed in other professions, we may not dispute; but that the occurrence of such characters as here depicted is so frequent as to warrant such an exposure, we cannot persuade ourselves to believe. Knowing, indeed, as we do, the rules which regulate the legitimate practice of "the healing art" on this side the Channel, we hesitate not to aver that some of the artifices that are here exposed could not by possibility occur in our part of the empire; that they should be even suffered to occur in the sister island, and that a necessity for such an exposure of them as here meets us should exist, does certainly cause considerable surprise. Partly to amuse, and partly to enlighten our readers, we give the following sample, concerning the *vraisemblance* of which we leave others to judge:—

"Can it be possible that the honoured and honourable diploma, or license in physic, should ever become a stalking-horse for trickery? Is it reasonable to suppose that the doctor would at any time be influenced by the petty sentiments of spite and envy, in his conduct towards his professional brethren? As a philosopher, or at least as a man of common sense (a less pretentious, but by no means less creditable character), it might be imagined that he was too intimately acquainted with the chances of life ever to think it worth while to feel anything but the deepest interest in their honour and welfare. Rightly appreciated, the success of another adds lustre to ourselves. The distinguished conduct of each conduces to the distinction of all, just as the prosperity of all contributes to the well-being of each. In this light there would be no place for envy; and the noblest of professions, standing among the first in science as it is the first in benevolence, disinterestedness, and fraternal kindness, would not be sullied by those bickerings and

heartburnings which too commonly beset the course of every-day life. But, alas for human nature!

"In yonder row of spacious mansions resides, no matter whence his wealth, a very rich man, who has purchased two of the houses and thrown them both into one. He is so rich that he consumes upon himself alone more than twice as much as any other ordinary human being, and, singular to say, enjoys better health than most mortals. His grooms, his horses, his furniture, and his household, all bespeak the man of money. He is a rare child of fortune, and fortune is good so long as she lasts. But what of that? He is sometimes ailing, and in the hour of need, real or imaginary, resorts to the aid of medical skill. What a pluming of pinions among the rising M. D.'s; what a shuffling of feathers among the eager general practitioners! What tiptoe excitement to learn upon whom will fall the patronage of one who is as much beneath them in intelligence as he is above them in wealth! Of course, only one can be selected. The rest bite their lips and retire. The great man takes a dislike to the one he has chosen. He turns him off and calls in a second, who is in turn dismissed as summarily as the first. Both the first and the second were men of approved talents and probity; but the great man does not care for that; they did not suit him, and he puts them aside at a moment's notice. He at last falls in with one to his entire satisfaction, in the person of an ignoramus as clever as himself. It is a decided hit; they were made for each other; and Dives and Ignoramus go hand in hand. The squad of the rejected look on and wonder, but it is a wonder to no one except themselves.

"In that well-furnished nursery lies a sick child, tended by its officious nurse, and watched by its sensitive mamma with continued and restless solicitude. The care bestowed upon the infant is out of all proportion to the exigency of the case. The child is ill, and may possibly die, but will, under ordinary care and attention, in all probability recover. The medical man who has charge of the case is a well-informed and experienced practitioner, perfectly aware of the contingencies of the ailment, and calmly alive to the whims and fancies by which he is beset. His little patient lingers on; his credit is on the wane; another practitioner is named of infallible skill, particularly in cases of this description; and he is called into consultation along with the family medical attendant. At an appointed hour, a carriage and pair drive up to the house; no knocker is raised, for fear of a noise; only the door-bell vibrates gently; and in walks the pattern M. D. He is a tall man with an obsequious stoop, and his knees slightly bent. His hair is brushed back; he wears gold spectacles, a white tie, and a black suit. There is no creaking of his shoes, and his manner is bland and soothing. He hangs over the crib of the dear sick child in a solemn attitude of observation; touches it lightly, listens to its breathing, feels its tiny pulse at the wrist; and then quietly looking up asks the old practitioner, who is standing by and looking on, whether he has given his little patient *Tous les mois*,—a panacea at that time only just intro-

duced. The answer is in the negative. What?—Not!—replies the pattern, with an affected look of surprise; not given *Tous les mois?* *Tous les mois*, nurse; *Tous les mois*, my lady,—turning to the agonized mamma—*Tous les mois* will cure your child! The old practitioner is dismissed, on the score of ignorance, and under the judicious use of *Tous les mois* the child recovers.

"There are tricks in every trade, but of all tricks, professional pedantry is the most detestable. It has it all its own way. The party duped can have no insight into the secrets by which he is guided in the management of his property, his soul, or his life. He must trust implicitly to the integrity and skill of his professional adviser, whom he flies to in moments of the last resort. It is in the embarrassment of such occasions that the trickster succeeds. There is the opportunity of putting himself forward, and he seizes it with adroit avidity."

Having said so much in the way of stricture, we are bound to add, that the professional reader will find in these pages not a little to interest and also to instruct. The subject of cottage asylums is particularly ably discussed by Commissioner W. A. F. Browne, in the number for April; and in the same paper a highly interesting review occurs of the now far-famed Gheel.[a] We find here an exceedingly useful and impartial *resumé* of the evidence for and against that asylum and its discipline. We would also call attention to a very sensible and suggestive paper, by Dr. Gavin Milroy, in the same number, on the subject of "Quarantine;" which, with sundry other articles in the numbers under review, are of very considerable interest and importance.

5. Dr. Ritchie's pamphlet treats on a subject full of painful interest, not alone to the alienist, but to the general practitioner, as well indeed as to some, especially heads of families, in private life. *The cause* referred to in the title-page is masturbation, the details and statistics connected with which, as related to insanity, are many of them as startling as they are valuable, however humiliating and loathsome the particulars therewith connected.

6. An amusing record of a holiday, spent in the pursuit of well-earned recreation, which will be read with interest by "the many," and chiefly by those who took part in it. We heartily wish that many such attempts were made by the men

[a] The Gheel question is also more fully discussed, and with great interest, in the July Number of the Journal, by the same gentleman, as also by M. Mundy, of Moravia.

who work the brain, as well as by those who ply their bone and sinew in the cause of manual labour.

7. Dr. Flynn's reports of the Clonmel District Hospital for the Insane, for the years 1860 and 1861, are now before us for the first time. That for 1860 contains Dr. Flynn's views at length as to the proper and best machinery desirable to be put in operation in Ireland for meeting the wants of the insane generally, and for the due government of the establishments set apart for their treatment, some of which are not undeserving of attention; but others, we are free to say, would not, in our judgment, be any improvement on the present system, one which, however defective, has this great advantage to recommend it, that the appointments, &c., of boards of governors and principal officers are in the hands of the executive alone, and in which we trust they will always remain.

The report for the present year is written in Dr. Flynn's peculiar style of outspokenness and originality, dealing out many hard blows on public functionaries coming across his path, without any compunction, though he himself considers his remarks to have been made in "a calm and proper spirit;" but which, to an ordinary reader, would appear to fall short somewhat of that character.

Dr. Flynn, to his credit let it be stated, makes a strong appeal on behalf of the subordinate officers of asylums, who, when incapacitated by increasing years, or any other unavoidable cause, from continuing in the performance of their peculiarly trying duties, are pensioned off on a scale of the most pinching poverty—a bad return for past labours and dangers, which at best are remunerated in a most niggard and cheese-paring spirit—one but ill calculated either to obtain or secure the services of competent and skilled parties, to fulfil duties second to none for importance in being properly and faithfully performed.

Dr. Flynn thus warmly, and we will add most truly, expresses his feelings on this matter of asylum finance, and, as we have already said, so much to his credit:—

"A person in the humble and lonely condition of an asylum attendant is never off duty; he or she lives with the patients entrusted to their charge. Let any humane or benevolent senator just consider a person living fifteen or twenty years in a mad-house [we must take exception to this offensive and vulgar term being used, especially by an alienist practitioner of standing like Dr. Flynn], associating by day and night with mad people [more bad

taste]—sleeping, as nine out of ten of the attendants do, and must, in the same rooms with their patients, to guard against accident, or teach them habits of self-control—and at the end of that long period (if they remain or survive), obtaining about 4*d.* per day, when broken down by illness, mental or bodily, to sustain them for the remainder of life; and even that pittance cannot be obtained until they run the gauntlet through the central offices and audit commissioners."

This is really such a complete burlesque, if not insult, in the way of pensioning off for long and faithful services of the most irksome and arduous kind, that it is discreditable to the country in the largest measure, and deserving of being held up to even greater scorn and contempt than Dr. Flynn's scathing reference to it has done. We heartily join Dr. Flynn in the hope that some independent and "benevolent member of Parliament may see the facts as now put forward, and, seeing them, take steps to remedy so great an evil; since few servants of a higher order of intellect or energy can be attached to a service where the prospects, after the flower of their age is passed, are before them in the shape of servants absolutely starving on fourpence per day, *or less*, as a reward for fifteen or twenty years' faithful and efficient *unceasing* duty."

Dr. Flynn refers to the worthy and eminent visiting physician of the Clonmel Asylum in the following complimentary terms, which speaks well for both parties, and is just such a state of things as ought always to exist between gentlemen who are both members of an honourable profession, and who are both honourably and usefully engaged in the fulfilment of its high behests:—

"In endeavouring to preserve harmony and good order in this establishment, I owe much to the kind and cordial co-operation of my esteemed and respected colleague, Dr. Sheill, the visiting physician."

The Clonmel District Asylum has always maintained a high character and place amongst kindred institutions for its able and humane conduct under the especial superintendence of Dr. Flynn, who, although by no means loth to engage in a passage at arms with friend or foe, as the case might be, and as occasion might arise, is much esteemed for his independent Milesian spirit, and earnest desire to promote the welfare of those with whom his lot has been cast, and for whose benefit he has been sedulously labouring for the last twenty years and upwards. Having made the above few remarks, we have only

left ourselves space to add the following particulars of this institution in respect of its working during the past year:—

			M.	F.	Total.
Patients under treatment on 1st April, 1860, .			72	67	139
Since admitted, ...			2	10	12
Total under treatment during the year, . .			74	77	151
Discharged, recovered, ...	3	3			
,, improved, ...	0	1			
Died, ...	1	3	4	7	11
Remaining on 1st April, 1861, ...			70	70	140

The causes of the remarkably small number of deaths which occured during the year were, phthisis, 2 (females); paralysis, 1 (female); old age, 1 (male).

The expenditure for the year amounted to £3642 17*s.* 1½*d.* There is one comparatively large item embraced in this total outlay—namely, £20 for tobacco and snuff, to which we must take exception. We had hoped that Dr. Flynn, a reformer of the first water of all abuses in asylum management, not sparing the highest in authority more than the humblest, when he finds it necessary to administer a rebuke, would have been the last to have sanctioned a morally and physically injurious expenditure of this kind. Let it not be supposed that we wish to deprive the poor patients of comforts. Far otherwise. We would desire to see them largely increased, but neither by tobacco nor snuff, both of which should be anathematized in every well-conducted hospital for the treatment of insanity, and, we are glad to find, are rapidly coming to this well-deserved fate.

8. The annual report of the Armagh District Hospital for the Insane is another of the Irish reports with which we have been supplied now for the first time. It is for the year ended 31st March, 1861; and the report itself cannot certainly be charged with prolixity, extending as it does to the modest length of a single page only, the remainder (fourteen pages) being devoted to the statistical information usually afforded in such publications.

The institution had under treatment on the above date 144 patients—71 males and 73 females, and of this number but 24 were considered probably curable. The cases discharged recovered during the year amounted to nine only, and the deaths to seven, which was a very small mortality percentage, especially under the very unfavourable hygienic condition of this

institution, as will be seen further on in this notice. Dr. M'Kinstry, the efficient and zealous resident physician, earnestly calls attention to the great necessity for additional accommodation, and various internal improvements which have been needed for a prolonged period; but still, owing to the potent sway of red-tapeism at head-quarters, such appeals have been made in vain. About two years ago, Dr. Workman, the experienced and able physician and superintendent of the Toronto Government Provincial Hospital for the Insane, published a valuable and most interesting account[a] of a visit made by him in the summer of 1859, at the request of the visiting commissioners of his asylum, to the principal hospitals for the insane in Great Britain and Ireland; and one of the latter number was the Armagh establishment, his visit to which he thus describes:—

"The next asylum visited by me was that of Armagh. This, I trust, is not only the worst in Ireland, but in all the world. It contains only about 150 patients, yet it is the sole insane asylum for the three populous counties of Armagh, Tyrone, and Monaghan. The arm of paternal despotism is wanted here, and it is to be hoped that the Irish Board of Works will, ere long, do for these counties what has been done for Kerry. Nothing short of arbitrary central power will be adequate. The landed proprietary, who compose the grand juries, set their faces against local imposts. The claims of humanity are but as dust in the balance against the cravings of landlords. The Armagh Asylum is crammed; there is not a water-closet in the building; doorless privies in the walls of its poison-airing courts require no sign-board to indicate their location. When it is requisite to clean out these receptacles, the offensive matter has actually to be carried through the asylum. Water, it may be said, there is none, though the city main passes close to the premises. The foul air of the rotten, dungeon basement, is felt throughout the house. The quantity of land is eight acres. This is in Christian Ulster."

We reproduce the above on the present occasion as proof of the continued dilatoriness of some party or parties in authority in regenerating this asylum, which nearly three years ago was so forcibly shown to be immediately needed by a professional gentleman from abroad, but which still remains unattended to, except in one respect, a most important one we admit,—that of a supply of water,—having been at last obtained for the purposes of the establishment, which we were glad to find stated in Dr. M'Kinstry's present report, but in which also he takes occasion to observe:—

[a] Report of the Medical Superintendent of the Provincial Lunatic Asylum, Toronto, on British and Irish Asylums, printed by order of the Visiting Commissioners, p. 21.

"I regret that we still labour under the defects which have been *so frequently pointed out*, viz., imperfect sewerage, *want of lavatories, water-closets* [the italics are our own], hospital, dining, and recreation rooms."

Another very glaring want in this institution might also have been most properly added to the above black-list, but, no doubt, has been omitted from its being personal to the respected resident physician himself,—we allude to no suitable domestic accommodation being provided for that officer, who, like others similarly placed, is "cabin'd, cribb'd, confined" in such a manner as to be both injurious to health, and highly derogatory to him as the head of an important public establishment, and who, from his position, should have an entirely separate residence from any other officer, as is the case in England and Scotland, and elsewhere; but in Ireland, common decency and propriety, to say nothing of respect, are altogether ignored as a rule, in this essential of only reasonable domestic comfort and privacy for the chief official who has to bear the burden and heat of the day, and who should, after his day's toil and ever-anxious duties, have his own house to retire into from the carking cares and annoyances by which he is continually surrounded. It is to be hoped that in the new District Asylums, now in course of erection, separate dwelling-houses will be built for their respective resident physicians; for, as matters are and have been, as regards the private accommodation of the greater number, nothing could be worse or more humiliating in every point of view. The Commissioners for the control, &c., of asylums have these buildings now entirely in their hands; and with them, accordingly, will rest the responsibility of a most serious and pressing grievance of this kind being further perpetuated, but which we feel assured they will see the necessity of having effectually provided against in the new as well as remedied in the existing asylums.

9. This tract, as its wrapper states, is a reprint from the "Journal of Mental Science for April, 1861." It contains a highly interesting historical sketch of the now far-famed Belgian village of Gheel, and some remarks on its constitution, characterized by great candour as well as common sense. Dr. Sibbald has arrived at the same conclusion as Dr. Bucknill and other competent judges, viz., that the design and system of the Gheel institution are neither to be cried down and abjured as "detestable," nor yet lauded and adopted as models. Our own feeling is, that a modified "cottage system," adapted to the habits and customs of our own land, and having engrafted on

it the existence and advantages of a parent asylum and adequate staff to direct and control, would, perhaps, best meet the requirements of our day, in regard to the curative treatment and protection of the insane.

10. The authorities of the Belfast District Hospital for the Insane, we find by the report of the present year, continue still to be engaged in discussing the best means of providing additional accommodation.

It would appear that a difference of opinion exists between the governors of the asylum and one of the grand juries of the district, that of the County Down,—the former advocating the propriety of further extending the accommodation for the district by the erection of an "auxiliary building," to relieve the parent asylum of its chronic cases, as will be seen by the annexed extract from a statement submitted by a deputation of the board of governors to the several grand juries of the district at the last spring assizes:—

"We do not propose to erect an asylum for incurables; it is no province of ours to predict who may recover, or who may not; we simply propose that patients of a certain class, or of a certain period of continuance in the present asylum, shall be placed in another, without any ban or sentence, or even expressed opinion regarding their recovery, and without the remotest intimation which would tend to shut out hope from any mind.

"We make no proposal of separating them from a curative system, but, on the contrary, we insist that their dietary, their accommodation, air, exercise, amusement, medical attendance, and whole management, shall not only be such as science and experience have proved to be best; but, we trust that, according to the great principle of division of labour, superintendent, medical staff, and caretakers, all having their attention and energies concentrated in one sphere, the prospect of recovery among the patients will be more hopeful than ever.

"Thus we expect to accomplish what Drs. White and Nugent, in their report for 1855, call a most desirable object, inasmuch as all the chronic and incurable cases which have been for many years accumulating, and at present take up a great deal of valuable room in the several district asylums that could otherwise be more beneficially devoted to recent and acute cases, may be removed to this auxiliary building, by which means a twofold advantage would be gained,—the provision of proper accommodation for the class in question, without the objectionable title of an asylum for incurables, and the disembarrassment of the parent asylum from all but inmates suffering from recent and acute affections, or those whose malady affords reasonable hope of ultimate recovery, thus leaving it free to exercise its proper and legitimate functions of an hospi-

tal for the cure of insanity, instead of being a mere receptacle for the safe-keeping and maintenance of chronic cases."

The County Down grand jury, however, came to the determination of seeking for a separate asylum for their own county, and at this point the question of additional accommodation remained up to March last.

As regards the operations in ordinary of this establishment during the past year, we may supply the following extracts from the resident physician's report:—

"*General Statement of the Year's Admissions, &c.*

	Males.	Females.	Total.	Males.	Females.	Total.
In house, on 1st April, 1860,	...	...	...	188	166	354
Admitted since, new cases,	49	49	98			
Relapses	2	2	4			
	—	—	—	51	51	102
Total under treatment during the year,				239	217	456
Discharged, recovered,	18	29	47			
Ditto, relieved,	14	17	31			
Died,	14	8	22			
	—	—	—	46	54	100
Remaining under treatment on 31st March, 1861,				193	163	356
Daily average number of patients during the year,						356·98

	£	s.	d.
Average expense of each patient for the year, including every charge,	18	16	2

"*Heads of Expenditure.*

Provisions,	£3172	14	1
Clothing,	899	7	4
Bedding,	183	14	1
Furniture,	51	9	1
Fuel and light,	379	18	8
Soap, candles, &c.,	133	10	4
Stationery and printing,	28	17	9
Newspapers and periodicals,	11	5	5
Advertising,	2	5	10
Medicines,	27	0	8
Repairs and alterations,	532	9	4
Farm and garden expenses,	65	2	10
Insurance,	22	12	6
Incidental expenses,	76	3	4
Band-master,	10	16	0
Salaries and wages,	1111	16	5
Postage,	3	19	6
Total,	£6713	3	2

"*General Health.*—No epidemic disease occurred during the year, the average health that prevailed amongst the inmates generally having been remarkably good and satisfactory.

"*Mortality of the Year.*—Twenty-two deaths in all have to be recorded for the past year, which, with an average daily population of 357 nearly, was extremely small, making the percentage only 6·101; or, if taken on the total number under treatment during the year, but 4·824.

"Two of the deceased were inmates for the short period of eight days each, both having been admitted under circumstances of the most unpromising nature. One of these, a female, having taken advantage of an unguarded moment before her admission, precipitated herself from a window 38 feet from the ground. Most extraordinary to relate, after falling so great a distance, she not only did not sustain any fracture of the bones, large or small, or other visible outward injury—excepting a slight abrasion on the foot—but was able, it appeared, to walk back to her bed without any difficulty, or manifesting any pain. The other, a male, the subject of acute mania, had obstinately refused nourishment of any kind for several days before coming under treatment, which, together with the prostration that ensued from the violence of the mental attack, thus soon led to a fatal termination. A third case, also a male, had to be placed in bed immediately after admission, which he never left all his inmateship of about a month's duration, he being completely shattered in health, and the subject of partial paralysis for some time previously.

"One of the deceased males had been an inmate for the prolonged period of twenty-six years, and was always of a very violent and turbulent disposition, frequently turning suddenly upon the nearest to him, and striking or kicking severely without any provocation whatever. Three others of the males were, respectively, in the house twenty-three, fifteen, and fourteen years. The oldest deceased male had reached the advanced age of seventy-five, and, until a very short period of death, enjoyed vigorous health. A few months before his death, this patient, who had been an inmate fifteen years, with two short intervals of discharge, was apparently so fully restored to mental health, and so extremely well-conducted in every respect, not having had a relapse for upwards of three years, that he was removed home by his family, who were very desirous that he should finish the remainder of his days with them; but a fortnight had scarcely elapsed when his insanity returned, and with such extreme excitement and turbulence as to be dangerous to all about him, when his re-admission here had to be effected, and, until death supervened, the renewed maniacal condition continued. This is but one of many instances which might be adduced of the large number of the inmates of these institutions, who whilst under constant superintendence behave remarkably well, betraying frequently no evidence whatever of mental disturbance; but let them mix again in ordinary with their fellow-men, and soon a very different state of things results.

"*Causes of Death.*—The causes of the deaths which took place during the year were:—General debility, four (three males, one female); paralysis, four (males); epilepsy, three (two males, one female); exhaustion from maniacal excitement, two (one male, one female); pulmonary consumption, two (one male, one female); apoplexy, two (one male, one female); cancerous ulceration of jaw, two (males); injury resulting from precipitation, one (female); disease of liver, one (male); dropsy, one (female). Of the fifteen males contained in the above, the oldest was seventy-five years, the youngest nineteen, and the average of all forty-four and a half years; and of the seven females, the oldest and youngest, respectively, were sixty and nineteen years, their average age being in round numbers thirty-nine years.

"*Suicidal Cases.*—Though the number of patients admitted during the year, with the suicidal propensity more or less strongly marked, was comparatively large, it has thankfully to be stated that no accident in this or any other way occurred, thus speaking well for the great vigilance of the attendants. Very recently a male patient, under the denomination of a 'dangerous lunatic,' was received from one of the gaols by warrant of the Lord Lieutenant, who whilst there required to be constantly watched both day and night during an incarceration of two months, so bent was he on self-destruction, and having on two occasions, prior to his admission into gaol, attempted the suicidal act,—on the first, by cutting his throat very severely; and, on the second, by throwing himself under a mill-wheel, when one of his legs was severely lacerated. Cases like the above cause incessant anxiety in these institutions, as may well be imagined, the amazingly cunningly-devised means on the part of the suicidally disposed to accomplish the one object upon which they are bent, being almost impossible for human foresight or the greatest caution to guard against or to prevent.

"*Recoveries.*—The cases discharged recovered during the year amounted to forty-six, being an average of 45·098 per cent. on the new admissions; and the discharges, as relieved, were thirty-two, which was a percentage of 31·372 on the new cases, both being very favourable, considering the embarrassed state of the institution, owing to its crowded condition.

"*Present State of Accommodation.*—Throughout the past year the wards of the house were, as hitherto, not only always full, but overcrowded—a condition of things which the governors have been earnestly endeavouring to have rectified, but hitherto without any decided result. Embodied in this report are their proceedings on that head, which makes it unnecessary to say more on the subject here, but simply to reiterate how pressing the necessity is, that this state of things, so adverse to the best interests of the insane, as well as of the community at large, should be remedied with the least possible delay. The cases in ordinary for admission on the books of the institution just at present are not so numerous as they were a few months back, efforts having been made, at every incon-

venience, to reduce the number, so that there are only five awaiting being received as soon as such can be effected. In the gaols, however, there are about twenty-five committed as 'dangerous lunatics,' and who, of course, must necessarily there remain for some indefinite period, as the prospect of taking them in charge here is very remote indeed.

"*Official Visitation.*—The house was officially visited by Drs. Nugent and Hatchell, the Government Commissioners of Control of Asylums, five times during the past year, besides the regular monthly inspections of the board, upon all of which occasions minutes were entered on the books of the general state and management of the institution and the treatment of the patients having been entirely satisfactory.

"*Steam-engine for Pumping Water.*—The erection of the above has been one of the greatest additions to the domestic comfort and sanitary condition of the institution which can well be conceived, the supply of water through its means being always ample, and the more than questionable employment of the patients in so laborious and never-ceasing a process for obtaining the same by a force-pump having been now rendered altogether unnecessary.

"*Patients' Band and Walks into the Country.*—The musical band, which was commenced amongst the inmates two years since (about twelve of them joining in it) continues to progress with much credit to their instructor, Mr. Dornan, and to delight unspeakably the patients themselves of all classes, who take the greatest interest and pleasure in this kind of inspiriting music, and important adjunct in their daily amusement and moral treatment. Their military drill exercises also—which have been referred to in former reports—and walks into the country, continue to be regularly practised, and with the happiest results in every respect."

11. Dr. Bucknill, in his practical fifteenth annual report of the Devon County Asylum, discusses ably the question as to the safest and most suitable period of sanctioning the discharge of patients, and well observes on this subject that—

"A certain result of the premature discharge of patients is, that their progress towards permanent recovery is thereby interrupted, and that it may never be re-established. The premature cessation of medical care and treatment must frequently be followed by the return of acute symptoms of insanity, which may or may not give way under renewed treatment; and if they do not give way, an incurable case of insanity is the lamentable issue."

He also, with much effect, shows the ignorance which many who ought to know better, labour under with reference to the apparent complete sanity of a certain class of the inmates of asylums, and their perfect fitness apparently to be at large, because they are observed to be quiet and industrious, and sen-

sible in all their actions, within the walls of such establishments. On this important point he very properly says:—

"It is not very intelligible to persons who are unacquainted with the phenomena of insanity, how it is that patients who enjoy an apparent liberty of action in the gardens and fields of an asylum cannot safely be permitted to reside at their own homes. The explanation of course is, that the liberty of patients in the asylum is only apparent; that constant and experienced surveillance is exercised over them, and that only such a degree of liberty is permitted as is thought to be expedient for their state at the time being. Insanity is a varying condition; and a patient who may one day be trusted in field labours, in the kitchen, or laundry, may the next day be in a state of dangerous excitement."

The report states that the total number of patients under treatment for the year 1860 was 788, the number of whom admitted during that period was 165. The recoveries were 98, being in the satisfactory proportion of 59·4 per cent. on the admissions. The deaths for the year were 80. The number that remained under treatment at the close of 1860 was 579, and the daily average resident was 592. Dr. Bucknill mentions, as to the greater amount of deaths than usual, that those

"Of very aged persons, and of persons brought in in a helpless condition of bodily decay, had been large. The number was still larger of those who succumbed to that invariably fatal form of disease known as general paralysis; while the number of those who died under forms of disease susceptible of relief by medical treatment was very small."

Amongst the principal causes of death were:—General paralysis, 23; phthisis, 12; epilepsy, 6; apoplexy, 8; gradual exhaustion and senile decay, 15. Eight of the deceased were between 80 and 90, nine between 70 and 80, thirteen between 60 and 70, and eight between 50 and 60; so that 38, or nearly one half the number of fatal cases, were pretty well advanced in years, especially for the insane, the tendency of insanity *per se* being to shorten the natural period of life. The oldest of the deceased had arrived at the patriarchal age of 87, and had been nearly fifteen years an inmate. Respecting the deaths which arose from phthisis, Dr. Bucknill observes:—

"Four of these cases were admitted with this disease in an advanced state, but in nine others the disease was undoubtedly developed during the residence of the patients in the asylum; and the apprehension has been impressed upon me, that the disease may have been developed by the over-crowded state of the dormitories.

Phthisis is exactly the disease which would be developed by the bad influence of deteriorated air, breathed habitually at night."

This is an important and salutary warning against over crowding an asylum in any respect, but more especially as regards dormitories, which in any larger size than to contain six, we have always repudiated, and shall, "even though the breathing space," to quote the words of Dr. Bucknill, "both by night and by day, should be subjected to fixed regulations."

Having given so much on the foregoing matter from Dr. Bucknill's suggestive, excellent, and ingenuous statement, we must close our remarks by calling attention to one or two points that struck us on looking through the fully detailed financial account at the end of the report. And first as to the great outlay of £102 14*s.* 5*d.* for such disgusting and injurious things as "tobacco, snuff, and pipes," and the small one of only £6 17*s.* for "books and bookbinding," which, we presume, mean books of general reading; and if not, there would then appear to be no provision at all for supplying this great institution, at the head of which is a first-class literary man, with any of the light literature of the day, not even a newspaper, which, however, we cannot bring ourselves to believe. For "patients' amusements" there certainly has been no great extravagance in that respect chargeable to the institution, namely, but £4 1*s.* 5*d.*, and of which very moderate sum, £2 13*s.* was expended upon "lecturers" (?), and £1 8*s.* 5*d.* for "fiddle-strings," &c. We also perceive that for an "occasional schoolmaster," the sum only of £7 18*s.* was disbursed during the twelve months. The "creature-comforts," however, were not supplied with any niggard hand, as will be admitted when we state, and which we do most approvingly, that the expenditure in "butcher's meat and fish" was £2321 17*s.* 2*d.*; "milk, butter, cheese, and eggs," £800 1*s.* 9*d.*; "potatoes and fruit," £249 7*s.* 4*d.*; "malt, hops, cider, corks, and shives"(?), £796 9*s.*; "groceries," £461 8*s.* 6*d.*; and "tho' last not least" in importance, "wines and spirits," £94 2*s.* 6*d.* The total expenditure incurred for the whole year was £13,853 18*s.* 3*d.*

12. In our review last year of the report of the Suffolk Asylum, we called attention to its dietary not being, as we conceived, sufficiently liberal; but which we are glad to find by the report since published, and now before us, to have been a better one than had been represented by the scale then given as the one in use. The "corrected dietary," now sup-

plied as actually in operation at that time and at present, we feel bound to say, appears to us all that could be desired in a matter of such primary domestic importance, one tending so largely to the well-being and restoration of the inmates.

The long-experienced and deservedly much-respected physician-superintendent of this institution, Dr. Kirkman, the President-elect of the Association of Medical Officers of Asylums and Hospitals for the Insane for next year, has a very satisfactory account to give of his establishment for 1860, the period embraced in his report, during which there were 415 patients (170 males, 245 females) under treatment; and of whom there were discharged, cured and relieved, 45 (10 males, 35 females); the deaths numbering 36[a] (18 males, and 18 females); which left remaining under treatment on the 31st December, 1861, 331 (142 males, 189 females).

The causes of death were:—maniacal, &c., exhaustion, 20; general paralysis, 3; paralysis, 4; diarrhœa, 2; erysipelas, 2; epilepsy, 1; lung disease, 1; coup de soleil, 1; apoplexy, 1; scrofula, 1; old age, 1; anarsarca, 1.

Of the new admissions during the year, viz., 107, but 49 were able to read and write, 37 to read only, and 21 had no education. Showing plainly enough that the schoolmaster is not much in requisition in this county. The domestic state of the above was—Married, 49; single 42; widowers, 5; widows, 11 = 107. The result of treatment was—Cured and relieved, 16; died, 9; remaining under treatment, 82; total, 107.

We are unable to say if the use of tobacco-smoking is sanctioned by Dr. Kirkman; there is no direct charge for it in the year's disbursements, unless it may be included under the large head of sundries, viz., £181 5*s.* 3*d.* It is somewhat suspicious-looking, we must admit, to find in the list of "contract prices," "tobacco, shag," quoted at 3*s.* 2*d.* per lb.

13. Dr. Thurnam, in his excellent tenth annual report of the Wilts County Asylum, states the satisfactory fact of the wards having been decorated, and their already cheerful aspect heightened by the introduction of a greater number of plants and singing birds. He also mentions that the Marquis of Aylesbury had kindly presented the institution with a contribution of gold and silver fishes, which was very acceptable; likewise that a set of tables for the out-door tea parties had

[a] There is a discrepancy in page 3 of the report, as to the number of deaths, as compared with pages 15 and 23, where they enumerate 38, instead of 36, as here viz., 20 males, 18 females.—Rev.

been made, and some additional musical instruments purchased for the band.

It is most creditable to the authorities of this and other asylums to find the disposition which happily is gaining ground amongst them, of meliorating in every way possible the hapless condition of the inmates of their respective institutions. A comparatively small expenditure each year in such matters as the above will be found most humanizing, and beneficial in every respect to the patients, and largely help to give more and more confidence to the public generally in their treatment and management.

The Wilts Asylum has always held a chief place for liberality and enlightenment in its general conduct, which could scarcely be otherwise, presided over as it always has been since its opening by a most intelligent and large-hearted superintendent in the person of Dr. Thurnam, than whom, in his important specialty, there is none his superior, for the possession of every qualification calculated to promote the best interests of the charge entrusted to his direction and protection, nor one who enjoys more the respect and confidence of his brethren. But still there is a "plague-spot" here, which we must persevere in our efforts to eradicate—that of the continued use of a narcotic poison in the shape of tobacco, 198¾ lbs. of which, with 41 lbs of snuff, at a cost of £38 19*s.* 10*d.*, were permitted by Dr. Thurnam to be used during the past year. We wish we could see even any diminution going on in respect of this noxious weed, which would afford some hope of its ultimate banishment altogether from an institution otherwise conducted on such sound and unquestionable principles.

Having discharged our bounden duty so far, it only remains for us to state, with reference to the patients treated during the year, that the total under care amounted to 449, of whom 188 were males, and 261 females. Of the above there were discharged—Recovered, 16 males, and 33 females; ditto, relieved, 5 males, and 4 females; ditto, not improved, 2 females. The deaths were 39, viz., 26 males, and 13 females, which left at the close of the year still under treatment 350, namely, 141 males, and 209 females. We regret much that we cannot enlarge our notice of this asylum by drawing more fully on the valuable contents of its interesting report.

14. The Worcester Asylum Report for the year 1859[a]

[a] Both this year and last the reports of this asylum were a year old before being supplied to us. For the future, unless we receive the latest, or past year's report

states "that the appointment of an assistant medical officer had insured more vigilant supervision of the inmates, and enabled more constant efforts to be made for carrying out their moral treatment by means of amusements, conversations, and industrial employments, in which a considerable portion of time was occupied." It also mentions that large additions had been made during the year "to the decorations and furniture of the wards and corridors, thus rendering them more cheerful by presenting objects of interest to the notice of the patients, and so tending to distract their minds from their delusions and diseased trains of thought."

Against the great impropriety of placing "criminal lunatics" amongst the patients of ordinary asylums, Dr. Sherlock, the experienced physician-superintendent of this institution, decidedly and properly protests, observing that "the indulgences allowed, and the liberty of action and movement common amongst the ordinary patients, together with their constant intercourse with each other, prevented that control and discipline being maintained over criminal cases which were absolutely required for their care and welfare, and for the safety and comfort of others." The total number of patients under treatment during the year amounted to 464, the discharges to 54, and the deaths to 40; leaving in the house at the close of the year 370, of whom 176 were males, and 194 females. So many as 22 of the deaths arose from disease of the cerebro-spinal system, viz., general and ordinary paralysis, epilepsy, &c. Post-mortem examinations were conducted in 31 cases, and discovered various morbid conditions of the brain, &c., which are fully given, greatly adding to the value of this well-arranged report of Dr. Sherlock's.

15. The Commissioners in Lunacy, in their official inspection of the Nottingham United County Asylum, report highly of its condition, &c. They say:—

"We have to express our opinion, that the condition and management of the asylum are highly creditable to Dr. Stiff, who has the sole medical charge of the institution; and we cannot avoid submitting for consideration the propriety of affording him the aid of an assistant medical officer, who may be qualified by his knowledge and observation of the patients officially to supply Dr. Stiff's place, in case of his illness or temporary absence."

of any institution, we cannot occupy our space with noticing those of older dates,—Rev.

This is a most reasonable suggestion, and cannot but be adopted by the local authorities, if it have not been so already.

To pass on to Dr. Stiff's own sound and judicious report, we observe from it that the United County Asylum of Nottingham afforded the benefit of its "highly creditable management" to 359 patients during 1860, of which number the discharges in recoveries, &c., were 44, and the number of deaths 41, leaving under treatment on the 31st of December last 274 (147 males, and 127 females). The most fatal cause of death was, as usual, general paralysis, 12 being chronicled under this head. One inquest was held upon an epileptic patient, who was found dead in his room in the morning, with his head on the floor, and his legs on the bed, twisted amongst the bedclothes. Dr. Stiff mentions that the rule pursued by him with patients, when in an epileptic attack, is "to place him on his side, with the body turned forward, and face inclined towards the prone position, on the plan recommended by Marshall Hall in the treatment of asphyxia; so that the ingress of air to the windpipe is free, and fluids are allowed to flow out of the mouth. The suffocation of the patient is thus prevented, and the paroxysm mitigated."

On examining the finance records of the Nottingham United County Asylum for 1860, it would appear therefrom that the total payments during the year were £7075 16*s.* 1*d.*; that the intellectual outlay, under the not very distinct head of "Lunacy forms, books, periodicals, news, &c.," amounted to £16 6*s.* 1*d.*; "amusements," to £2 0*s.* 9*d.*; and "tobacco, snuff, and pipes," to £23 16*s.* 3*d.* We would strongly recommend Dr. Stiff to supplement the means of "amusements" (at present so very few, as of necessity they must be) by the expenditure incurred in the purchase of the poisonous weed and "pipes," and thus add greatly to the "highly creditable condition" of the establishment which has prospered so unmistakably under the "paramount authority" vested in his hands.

16. We have been much gratified with the report of the Royal Edinburgh Asylum for 1860, now before us. Like the former reports emanating from the physician-superintendents of this public hospital for the insane, it contains so much that is both practical and interesting, as to make its perusal most profitable, and to afford every proof of the humanity and scientific treatment in constant operation for the benefit of the large number of patients at all times within its walls. During the year 1860, so many as 931 were under

treatment—a number very nearly equally divided as to sex, the males being 463, and the females 468. The discharged patients amounted to 193, 98 of this number being "cured" (36 males, 62 females), and 95 "uncured" (45 males, 50 females); and the deaths which occurred were 70 (45 males, 25 females), thus leaving at the end of the year 668 (337 males, 331 females). The great amount of responsibility and unceasing anxiety that the physician-in-chief of such a large establishment as this must necessarily be burdened with, it gives us much satisfaction to find, have not been unheeded by the board of managers, who, since last year, have increased Dr. Skae's salary from £497 10*s.* to its present amount of £610, which tells greatly both to their credit and his.

The remuneration meted out to Dr. Skae's assistant physicians we had occasion in our review last year to animadvert upon, as altogether below their deserts. At that time there were three assistants, the same as at present, who were paid, viz., first assistant, £65 per annum; second do., £42 per annum; third do., £21 17*s.* 3*d.* In this year's report we perceive those highly educated gentlemen and invaluable officials are rated as follows:—"Assistant physician, £80; second assistant ditto, £60; third assistant ditto, £11 8*s.* 6*d.*" The first and second assistants have gotten a small, and but a very scant and petty, increase after all; but, even so, it is pleasant to see this step in the right direction, and we wish those most useful and valuable "assistants" every enjoyment thereof. But what shall we say of the hard fate of the "third assistant ditto," who in 1859 was considered scarcely passing rich on the lavishness of the managers' payment to him of £21 17*s.* 3*d.*, that same functionary having made, or rather the managers for him, a very decided retrograde movement indeed, as indicated by the sum of £11 8*s.* 6*d.* being placed opposite to his office for the year of grace 1860! Let us hope that a satisfactory explanation can be given of this not even attempt at payment (possibly it was only for some fractional period), for services rendered, of a most trying kind; and, confiding in that hope, we shall here leave this very singular-looking affair in its existing aspect.

We have, in our references to the reports of two other Scotch asylums, on the present occasion, called attention to the deficiency in each of the usual diet tables: we have the same to state in respect of this one; and we feel assured that it is only necessary to mention the omission, and draw Dr. Skae's notice to it, in order to insure it a place amongst the other-

wise most complete information he affords in every important respect in his last year's report.

17. In our observations last year on the report of the Aberdeen Asylum, we called attention to the omission of any dietary in its contents—an omission, as we have already observed, in both the other Scotch reports contained in our present list; but not so in the English and Irish, a diet table being with them, as it properly should, a *sine quâ non*.

We regret that we have again the same exception to take on the present occasion to the report of this asylum, otherwise so complete; and we trust that the one to be next issued will not appear without any information on this important matter in the domestic economy of an hospital for the insane so generally well conducted as that at Aberdeen justly bears the character of being, under the able superintendence of Dr. Jamieson, its experienced physician-superintendent

The patients treated in this asylum during the year 1860 will best be shown by the following summary:—

	Male.	Female.	Total.
In the house 1st Jan., 1860,	144	163	307
Admitted since,	39	39	78
Under treatment during the year,	183	202	385

Removed during the year:—

	Male.	Female.	Total.			
Recovered,	15	17	32			
Relieved,	3	6	9			
Unimproved,	3	6	9			
Died,	16	6	22	37	35	72
Remaining 31st December, 1860,				146	167	313

Dr. Jamieson, in remarking upon the deaths during the year in his institution, 8 of which were of paralysis (6 males, 2 females); 5 of maniacal, &c., exhaustion (3 males, 2 females); 4 of epilepsy (3 males, 1 female); 1 each of apoplexy (male), pneumonia (male), chronic gastritis (male), bronchitis (male), and dysentery (female)—observes:

"No less than a proportion equivalent to 36 per cent. of the deaths is this year attributable to the remarkable condition of cerebral disorganization, known under the name of the *general paralysis* of the insane—a disease which is on the increase in this country, though less known than it is in most asylums. The majority

of deaths from general paralysis occurs about 45; but several deaths in the hospital have this year happened from this cause at a considerably earlier age—one of them at 27, which is, I think, the youngest example of the disease I have known in this asylum."

And to show the dangerous and pernicious use of tobacco-smoking, which cannot be too strongly denounced, Dr. Jamieson goes on to say:—

"In one case, over-smoking was considered by the relatives to have had a concern in the early production of general paralysis—a habit held by some French pathologists as not unlikely to occasion the disease; and undoubtedly, when indulged in in early life, before the full maturity of the nervous system, very capable of contributing to cerebral derangement and a predisposition to insanity."

With the above extracts we must conclude our notice of the Report of the Aberdeen Asylum, reiterating our hope, that the hint we have given of supplying its dietary will be acted upon in its next issue.

18. The Report of the Perth Asylum is another of those which has been a year behind time in reaching us, its date being so far back as June, 1860. It should have been in our hands in time for last year's review, and therefore is rather deficient in freshness at this late period for us to take any particular notice of its most ingeniously and voluminously elaborated contents—contents in a measure partaking of the character, *de omnibus rebus et quibusdam aliis*, and which, to have entered into separately, even in the briefest manner, would have occupied the entire of the space we have been able to devote on the present occasion to the several blue books, &c., contained in this review. In former remarks on the reports of this institution, we referred to their serious deficiency in respect of its directors never giving any statement whatever of the expenditure of the large funds generally supposed to be at their disposal. We make no doubt that their stewardship, in this respect, is everything that it should be; still we conceive that they owe it to themselves and the public to let this be seen, and this especially as, but with one other exception in the Scotch asylums, the Dumfries Institution, it stands alone in being unaccountably and mysteriously reticent in financial matters. It is also chargeable with another grave omission, that of giving no dietary scale. We refer to both these matters now in the best spirit, and in full expectation that the required information will not be withheld in future.

19. The paper entitled, "On Potentiality and Actuality in Man," is from the prolific pen of Dr. Bushnan, and a reprint from the "Journal of Mental Science," in which it appeared in the number for July, 1860; so that we need not here further allude to it than merely to observe, that, as regards this potentiality, the author states:—

"It refers to an idea well known both in physiology and psychology. Thus, in physiology, a serous empty sac is a potential cavity; and as respects potentiality, in reference to mental phenomena, we may conveniently conceive it as parallel to the potentiality of the phenomena of life existing in the germ at the moment of its first detachment from the parent, previous to the commencement of uterine life . . . . or, lastly, to an individual, as the type of a high standard of the human race. It is this last form of potentiality to which the following brief observations chiefly relate. To such a type of mankind the observations we have to make on actuality also belong."

20. In a former annual review, that for 1859, we shortly referred to a statistical report, embracing a period of five years, of cases of insanity treated in the Abington Abbey Asylum at Northampton, by Dr. Prichard, the resident physician and proprietor of that respectably-conducted establishment. We have been now supplied with a copy of a report of that institution for the year 1859, which is interesting in its contents, and creditable to its compiler, Dr. Prichard, who thus sets a very good example to his brethren by furnishing reports, statedly, of his establishment; and we have no doubt it would tend greatly to obtain for them the confidence of the general public, if they adopted a similar course of affording details of their curative treatment and its general results. We find it entirely out of our power to do more on the present occasion than to call attention to this very well arranged report—one which merits being carefully read—containing, as it does, much that is of an interesting and practical nature, and this, especially, emanating as it does from the pen of a "gentleman largely experienced in the practice of a public as well as a private asylum," Dr. Prichard having been formerly the efficient medical superintendent of the Glasgow Royal Asylum—an institution which has always maintained the highest character for its excellent and superior management. The Abington Abbey Asylum, we may just add, had 38 patients (25 males, 13 females), under treatment during 1859, of whom 10 were discharged, recovered (8 males, 2 females); ditto, relieved 2 (1 male, 1 female); ditto,

not improved, 1 (female); ditto, transferred to private asylum, 1 (male). No death occurred during the year.

21. We have in this nearly exhausted portion of our heading another reprint from the "Journal of Mental Science," having for its writer Dr. Bushnan, whose pen is certainly not idle in contributing to the specialty in which he holds no mean position, either as an author or as a scientific and successful practitioner. The pith of the author's learned dissertation on, "What is Psychology?" is summarized at its conclusion in the annexed paragraph:—

"In a certain sense, psychology is a department of physiology; and under that aspect it may derive improvement from those methods of cultivation which prevail in physiological science. Viewed as a department of physiology, pyschology may be made to include all the phenomena throughout the animal kingdom in which consciousness or the sense of existence takes a part. But more appropriately psychology belongs to anthropology, or what concerns man; and when limited in the greatest degree, it denotes the phenomenonology of the human mind in its healthy state, or that part of human science which is cultivated by the observation of what self-consciousness suggests."

22. The distinguished author of this reprint, entitled "Endemic Degeneration," Dr. Browne, of the Scotch Commission in Lunacy, does not confine himself—of which we have had more proofs than one in the course of this review—to the mere duties of his Commissionership, which must be sufficiently onerous and absorbing, but affords the benefit of any spare time he may have at his disposal, in still further giving the benefit of his talents and philanthropy to the cause of science and humanity, as in the instance of this *brochure*, which is full of interest of the deepest kind to the professional and inquiring reader, and reflects much credit on the writer for the more than ordinary pains he has taken in thus calling attention to its own immediate subject, together with the several collateral matters he has interwoven with it. This monograph by Dr. Browne affords the particulars of a family originally consisting of nine individuals, residing in the "land of Iona," so many as six living members of whom are described as being "so deformed, so hideous in countenance and aspect, as to suggest the last stage of some frightful plague, the type of the lower animals, or that of being the last members of a distinct and degenerated race of mankind." The parents of this dread-

fully-afflicted and repulsive family are stated to be still living, and apparently healthy, "with the exception of the mother, otherwise a comely woman, being the subject of opacity of the cornea." We would have wished had it been stated if any relationship, near or distant, had existed between the parents, or if either had been addicted to intemperance, or any other excess. But, setting aside this mere curiosity on our part, we consider Dr. Browne's contribution a valuable one, and eminently instructive in many most important respects.

23. Just as we were closing this review, we received this "Valedictory Address," with the immediately preceding pamphlet. We recognize in its author the "worthy son of a worthy sire"—one who is affording, by this and former appearances in print, ample proof of great industry and talent, and of untiring zeal in the cause of a profession of which he is giving every promise of being an ornament. Its author filled the responsible and honourable situation of senior president of the Royal Medical Society of Edinburgh during the late session of 1860–61, at the close of which he read this address, which was so eloquent and able, and so well received by the above long-established and most respectable society, as to be deemed worthy of being printed at its special request. That portion of the "Address" which more especially is germane to our present review, has reference to the necessity of regular instruction being afforded to medical pupils in the treatment of insanity, a necessity which we have always advocated, and which we are glad to find, with Mr. Browne, is "day by day becoming more important and popular,"—Mr. Browne entering fully into the several methods of conducting this peculiar and delicate kind of instruction, ultimately states it as his opinion, one in which we from long and actual experience entirely agree, that the most efficient method to be pursued would be, "the students to accompany resident physicians on their daily visits;" well and considerately observing that, by

> "Adopting this course we avoid the agitation and laceration of feeling which are inseparable from bringing patients into a lecture-room, and there examining them before an assembled class, besides securing to the student a practical acquaintance with mental disease, and a tact in dealing with its victims, which could never be attained by an individual examination of cases by separate students."

In closing this, our twelfth annual review "on Insanity and Hospitals for the Insane," we should state, in justice to ourselves, that we delayed to the latest possible period going to

press with it, in the hope of receiving a copy of the tenth Report, now due since the 31st of March last, on the District, &c., Asylums in Ireland, and placing it at the head of our list; a hope, however, which has not been realized. We applied more than once for it in the proper quarter, and were promised that it should be supplied in due time. An important public document of this kind—one in the blue book category—might, we think, without any great exertion, have been placed in the hands of the public months since, especially as it only makes its appearance once every two years.

A Practical Treatise on Military Surgery. By FRANK HASTINGS HAMILTON, late Surgeon, Thirty-third Regiment, Fourth Brigade, New York State Artillery; Professor of Military Surgery, and of Diseases and Accidents incident to Bones, in Bellevue Medical Hospital, &c., &c. New York: Baillière Brothers. 1861. pp. 232.

THE term "military surgery" has in these days a larger and more extended signification than it had some fifty years ago; it now embraces topics which then did not occupy much of the attention either of military authorities or of the medical officers of the service themselves. During the long peace which succeeded Waterloo, this branch of medical science made no progress, that is to say, while the purely surgical element, differing in little or nothing from the practice of civil life, increased and improved equally with it, the various other subjects embraced in military surgery,—the important questions of equipment of field ambulances, of transport of sick by sea and land, and the many subjects of vital moment involved in military hygiene and sanitary science in general,—remained neglected and unattended to. Although there had been mistakes enough in the Peninsular war, although men's lives were sacrificed in large numbers there, for the want of proper administration on these important matters, yet when that war was ended, and peace established, no effort was made to prevent the recurrence of such misfortunes, no steps were taken to establish a better system. After a forty years' peace we found ourselves suddenly plunged again into war; we took the field; British pluck and endurance were still the same; but from want of forethought, from want of taking timely advice and listening to the voices of men of experience and wisdom, every department upon which the efficiency and health of the army depended broke down, and failed utterly. How full of mean-

ing and warning are those words of Guthrie, in the introductory lecture of his Commentaries! He says, in speaking of the war in Spain:—"I have always intended, at some distant day, to notice the errors committed in the arrangement of the medical department during that war, by which so many lives were lost. Seven-and-thirty years have passed away, and the fitting time has not yet arrived. My old friends, whether civil, military, or medical, will not depart in peace; and lest I should give offence to the humblest in pretensions, I shall continue to defer my remarks until perhaps we may all go together, when it will be too late. Whenever another Continental war shall take place, similar errors will in all probability be again committed, with the same disastrous results, as far as regards the health, the happiness, and the lives of many who might be spared their miseries, if the great authorities of this country would only be pleased to allow themselves to be taught from the experience of those who have have been obliged to learn."

What a series of telling commentaries Bulgaria, with its fever, cholera, and scanty medical comforts; the Alma, without its ambulances; the transport service, without an hospital ship; and Scutari, with all its filthy horrors, furnish to those words.

If, then, we did not profit by the mistakes of the Peninsular campaign, has the war with Russia in recent years passed over, and left us still without any of the benefits of bitter experience? Have we profited by our lessons? Is the medical department of the British army more efficient than it was? Have our military surgeons more means at their disposal for the care and treatment of the sick and wounded. If we had to fight another Alma six months hence, should we require to borrow the ambulances of our allies to carry our wounded from the field; or should it happen, as we once knew to be the case, that a regimental surgeon, when visiting his sick, some sixty in number, suffering from fever and dysentery on the heights above Sebastopol, was obliged to say to them, with tears in his eyes, "My men, I can do nothing for you; I have neither comfort nor medicine to give you," verifying the statement of Guthrie, that a surgeon without his apparatus and equipment is little better than a battery of artillery without ammunition? Has anything been done to prevent on future occasions the medical officers of the British army from being charged with inefficiency not their own, or being made responsible in any way for the mistakes of a system which they cannot control?

We rejoice to know that steps are being taken to gather the fruits of past experience. The education of the rising generation of military surgeons is receiving much attention, and they are now taught the special duties of their position with care and ability. The army medical school at Chatham is an important step in the right direction. The young medical officer coming from it will join his regiment not entirely ignorant of the duties he has to perform—not the medical man *merely* (though we would never wish him for one moment to forget the importance of his purely professional duties), but the officer in whose hands are vested the obligations, not so much of skilfully curing disease as of preventing it, and of keeping those under his charge in an efficient state.

One of the best results, however, of the dearly bought experience of late years has been to call out, not only from our own countrymen, but from men of science and ability in other lands, the expression of their views on the questions embraced in military medical science. Baudens has given us the result of his experience in the French army. We have now before us, from America, a work of a practical man on the same subject. We have perused it with much satisfaction, though not without disappointment. The chapters, though pithy and to the point, are very short. There is not much new matter upon the subjects purely medical or surgical, but we have gathered together in its 213 pages all the questions of special interest to the military surgeon. To be a good and efficient military medical officer, it is requisite to combine the acquirements of a practitioner with those of a hygieist; and, when the higher grades of the profession are reached, those also of an administrator, on whose shoulders lies a grave responsibility. We, therefore, receive with pleasure this work, small though it be, which places before the student of military medical science a statement of his varied duties, and instructs him upon subjects which he will find it too late to learn when the enemy is in his front, and emergencies are arising constantly, which he must be able to meet. It is true, there may be many things in the American service different from our own, yet from these pages much that is useful and practical may be derived. There is here and there, indeed, a little touch of "Yankeeism," which sounds strange to our ears. Very many things have been omitted that should be found in such a treatise, but we nevertheless commend it to our military readers as worthy of their perusal.

The book commences with an introductory lecture on military surgery, delivered by the author at Bellevue College, in 1861. Various subjects are touched upon in this lecture. The object and end of military surgery in softening the frightful aspects of war, and mitigating its horrors, are pointed out; the importance of the army as a valuable school of surgical practice is dwelt upon,—a hint, by the way, which our own military surgeons, and those who have charge of the medical and surgical reports of the army, might do well to take advantage of. There is no doubt that the records of military medical science are very valuable, but they have seldom been given to the public. There are tomes, ponderous ones, comfortably bound and brightly lettered, standing in imposing rows on the book-shelves in Whitehall-place, from which much that is valuable and interesting might be culled. The varied experiences of well-educated and scientific men, who have recorded their views on subjects of interest to science at large, have been lying for years dusty and moth-eaten. What can be more disheartening to a medical officer, who, when on foreign service, at much labour and trouble, prepares a valuable topographical report, elaborately and carefully written, involving questions which many scientific men at home would be glad to read, than to feel that his pages are "acknowledged with thanks," pasted into the aforesaid ponderous tomes, but never read, or at best merely scanned over, and then consigned to oblivion? We do not blame the Director-General, or the officers under him at Whitehall—they cannot help it; they have had no time hitherto to do justice to the literary attainments of the officers of the department; but we know that this feeling has prevented many an able surgeon from using his pen; his efforts, he knew, could never see the light, nor add a jot to his reputation, or a farthing to his pay.

At last, however, an effort has been made to remedy this state of things; and the first yearly report of a series has been published by the War Office, containing reports on questions of sanitary, statistical, and medical science, carefully selected by the officers presiding over these branches from papers drawn up at various periods by military medical officers. This pamphlet, although it is in the form of a "blue book," a term generally sufficient to frighten away any reader, is now open to the medical officers of the army, and we do hope they will take advantage of it, and write more than they have hitherto done.

The character of Mr. Hamilton's introductory lecture is practical. He first points out the contrast between military

and civil surgery, showing that the principles are the same, that it is only in matters of detail there is any difference, the exigencies of war demanding frequent departures from the ordinary rules of practice. He teaches in clear and distinct language how the military surgeon must always be prepared for emergencies, ready to act promptly and vigorously with small means and impromptu appliances, never at a loss in moments of danger, when there is little time to think, or, rather, where thought and action must follow in rapid succession. He thus writes on this point:—

"In civil practice, the time occupied in any operation, especially since the introduction of anæsthetics, is generally regarded as a matter of secondary importance. And that mode which possesses even trifling points of superiority with reference to the final result, even though more tedious in its execution, justly claims the preference. Here we may properly apply the maxim, 'sat cito, si sat bene.' But in military practice, at least in most operations made upon the field, and where, as is usually the case, the number of surgeons is small in proportion to the number of wounded, time is of the first importance, and minor preferences must yield to major necessities. It will not do to let one man die of hemorrhage from the femoral artery because you wish to apply a ligature very methodically to the ulnar artery of another; nor to amputate a limb by circular incisions, when by oval incisions it can be done in half the time. Armand, whose noble sentiments one is frequently compelled to admire, speaking of his experience as surgeon to the ambulance of the Imperial Guard during the Crimean war, observes, 'In ordinary times of the siege, the local barracks, or the tents, sufficed. In the grand engagements, the encumbrance of the wounded was such that it became necessary to gather them into groups here and there; and God knows, then, how painful was the mission of the surgeons, who were compelled to multiply themselves to succour the hundreds, the thousands of the wounded, constantly imploring their aid!' There was but one precept then, '*Cito!* citissime!'

"General treatises upon surgery, and surgical teachers, assume that both the patient and his medical attendant are placed always under the most favourable circumstances: that ample time is allowed for a careful diagnosis; and, in view of an operation, that the patient is brought up to the best possible condition of preparation: that he is at least comfortably lodged, suitably nourished, and that his surgeon has at his command all the instruments and appliances which can render the execution of the operation more easy, and its success more certain. No man who has had much experience in teaching, and in examining medical students, can have failed to notice the danger of suggesting inferior alternatives for exceptional cases, which, through inattention or carelessness, are often substituted in

the minds of the pupil for the general law; and it is with much propriety, therefore, that these omissions are generally made.

"It is the special province of military and naval surgery to supply these deficiencies; instructing the pupil how, by a multitude of extemporaneous expedients, he may succour the wounded and relieve the sick when the usual resources fail, or are not at hand; how he may make the products of every country contribute to his necessities, and a single cruse of oil minister miraculously to a thousand."

In speaking of the practice in the American services, when a man falls in action, of sending two or three sound men from the ranks to carry him to the rear—it is not the practice in the British service—Mr. Hamilton thus writes:—

"The only real question then is as to the best mode of getting the soldiers wounded in battle to the hospital depots.

"A considerable proportion find no difficulty in reaching the depots without assistance; and it is wonderful sometimes through how small a wound a large amount of courage will ooze out. The slightest prick of a bayonet or the loss of a finger will cripple some men, and send them halting to the rear. These soldiers will take care of themselves.

"But when a man falls who is seriously wounded, and not killed outright, it is a common practice in both the American and British service for the officer in command to order a couple of soldiers to carry him off. This withdraws three men from the line, instead of one. But unfortunately it is well known that soldiers do not always wait for this authority. The commanding officer is not always where he can observe the conduct of all his men; and impelled by the instinct of humanity, they, in many instances, cheerfully anticipate the supposed wishes of their officers, and, seizing their fallen comrade, they bear him hastily from the field. The effect of this is most demoralizing; for while it actually and materially diminishes the force of the column, it diverts the attention of the soldiers and of the officers from their first purpose, especially by substituting the more delicate and enervating sentiments of humanity for those coarser but more stimulating passions, *revenge* and *ambition*, by which the courage of troops is chiefly sustained."

Now, however true it may be that men *do* fall out *very willingly* to carry a wounded comrade to the rear, and though we perfectly agree with the writer in the absolute necessity of having a special corps of men for this purpose alone, we certainly object to the spirit of the concluding sentences we have quoted. Revenge and ambition are not the feelings which actuate soldiers (at least not British soldiers) in action.

We believe it to be perfectly true that if the trumpet of peace were to sound in the midst of the fiercest engagement, among civilized troops, the opposing hosts would lay down their arms, and shake hands as friends.

But Mr. H.'s remarks upon the subject of having in the field a number of men available, in every battalion, for the purpose of carrying the wounded to the rear, and attending to them alone, are sound and practical, and have our fullest concurrence. Hitherto, in the British, as well as in the American service, this duty has devolved upon the regimental band, a duty to which these men are wholly unaccustomed, and entirely unfitted; it necessitates their leaving their band instruments in the rear, where they are lost or damaged, and they are called upon to perform duties from which many brave men shrink. In our own service a better system is about to be established; we had some lessons on this point in the Crimea, which we will not forget; the country, at all events, has not forgotten the corps of "Fogies," with Dr. Andrew Smith's large and unwieldy ambulance carriages, which came out to join the army under Lord Raglan. In three months this corps was annihilated; scarcely a man of those ancient heroes, who would have been better sitting in their own arm-chairs in Chelsea and Kilmainham, was left. Then we had the Medical Staff Corps, enlisted suddenly, and formed of vagabonds picked up anywhere, and packed off, untaught in these special duties, in batches to Scutari, and the hospitals in front, to tend sick and wounded men; no wonder Miss Nightingale called them a "set of sweeps." They too have been gradually absorbed; and now we have the Army Hospital Corps, which in time, it is hoped, will be efficient: a commission has recently sat in London for the purpose of regulating the duties of this corps, both in the general and regimental service. The recommendations of that commission have been fully approved by the War Office and Horse Guards, and are now officially published for future guidance, and we have no doubt, when sufficient time has elapsed to allow the system to establish itself, that much comfort to the sick and wounded on future occasions will result.

Mr. H. argues, in able terms, the claims of the medical officers of the American army and navy to a better social position. They appear to suffer in America from very much the same disadvantages our own officers labour under; and the acts of an enlightened legislature for their improvement seem to have been met with jealousy and opposition, from the same source as

in our own service. It is a well-known fact that the bitterest foes to the advancement of the medical officer are his own executive brother officers, his social companions at the mess, the men who have shared danger and discomfort with him, and at whose bedsides he has, many a time, watched with an anxiety for which he got little credit and less thanks. In our service these questions of rank and pay have long been discussed; the warrant of 1858 placed medical officers in a better position, but the privileges of rank and position excited a hurricane of jealousy among their brethren of the sword, and attacks were made on all sides on this warrant, the result of which has been that it has been shorn of its best parts, and tampered with, to meet the views of those who found that it affected their own selfish wishes. That which was considered an inviolable compact between the government and a scientific body of men has been broken, and the confidence of the medical department in their rulers and lawgivers has been destroyed. For this the Director-general is not to blame; both Dr. Gibson and his lamented predecessor have done their utmost to prevent it; and we do not hesitate to say, that if such narrow-minded policy be persevered in, the medical department of the British army will fall in efficiency and credit, and its ranks will not be filled by men of education and ability. The words of Lord Dalhousie, quoted at page 29 of Mr. H.'s introductory lecture, should be well considered by our Government.

The second chapter, on the examination of recruits, is very clear and concise; Mr. H. enters into a minute detail of all the causes of rejection. The examination of the recruit is one of the most important duties of the regimental surgeon; he can scarcely be too particular or careful in its performance; for his own sake he will be so, and it is necessary for him to have his mind fully instructed upon all the different causes which may render a recruit ineligible, sometimes difficult to detect, and often purposely concealed. We particularly notice the mode of examining a recruit copied from a Manual prepared by Dr. Tripler, U. S. A., as affording a systematic plan of inspection:—

"We have remarked that certain defects can be ascertained only by questioning the man himself, and that, in order to avoid all subsequent evasions, the answers to these questions should be recorded on the spot. We shall now suggest a method of effecting this object, as well as of making it sure that no important part shall escape inspection through any slip of the memory.

"The following printed form is to be furnished, upon which the

observations of the inspecting surgeon are to be recorded as they are made.

"Recruit A. B.
"Age Years,
"Occupation,
"Born in
"Presented by
"1. Have you ever been sick? When, and of what diseases?
"2. Have you any disease now? (Such as diarrhœa, cough, and the like.)
"3. Have you ever had fits?
"4. Have you ever received an injury or wound upon the head?
"5. Have you ever had a fracture, a dislocation, or a sprain?
"6. Are you in the habit of drinking? or, have you ever had the 'horrors'?
"7. Are you subject to the piles?
"8. Have you any difficulty in urinating?
"9. Have you been vaccinated? or, had the small-pox?

"Head.
"Ears.
"Face.
"Eyes and appendages.
"Nose.
"Organs of mastication and voice.
"Neck.
"Chest.
"Abdomen.
"Genital and urinary organs.
"Vertebral column.
"Superior extremities.
"Inferior extremities.

REMARKS.

"(Approved or rejected as the case may be.)
"Date.
"Rendezvous.

"*Inspecting Surgeon.*"

We think, however, the author has made one mistake in not touching upon the question of the discharge of soldiers. We do not know the rules by which this important part of the duties of medical officers is guided in the American service, but we cannot help regretting that some remarks were not made upon this subject, for the benefit of his younger readers.

In the third chapter, on the general hygiene of troops, a matter which of late has occupied much of the attention of our own government, the author considers, in four short sections,

the questions of diet, cleanliness, dress, and exercise. We must here observe, that it is evident this book is intended principally for the guidance of medical officers serving in the field, else we cannot think Mr. Hamilton would have been silent on many of the most important points of hygienic management. For example he has not touched at all on the subject of vaccination, and re-vaccination of soldiers; he has omitted also to speak of venereal disease, the curse and bane of every army: we would have been glad to have known if any measures had been adopted in the American service to stay this plague, when we reflect that more than half the sick of our own army, at home, are suffering from this malady, and that hundreds of young soldiers are discharged, yearly, from the service in consequence of it; and judging that matters may be somewhat the same with our cousins, we cannot but regret that we have not been favoured with the views of an experienced surgeon upon a question of such vital importance to the efficiency of an army.

On the subject of diet, in the first section of this chapter, we think it a pity the author did not introduce the scale of the soldiers' daily rations, and hospital diet, used in the U. S. Army. In our own service, the soldier in time of peace has sufficient food, and generally of good quality; the great drawback to his comfort is bad cooking; the men are not properly taught to cook. Aldershot professes to do it; flying brigades march from that camp, in the summer-time, on expeditions of a week's duration, to Woolmer Forest, Sandhurst, and other places in the neighbourhood; and it is likely the men learn in their marches something about the preparation of their own food; but the instruction is insufficient. We are not a nation of cooks, like our neighbours in France; few of us, even in Ireland, know how to boil a potato; and when we have seen the messes of our soldiers in the barrack-room, we have had great reason to regret that they have not been better taught upon a subject so nearly connected with their comfort. We are very glad to observe in the appendix to the work before us, at page 215, ample instruction on the subject of camp and hospital cooking. This may be considered a matter beneath the notice of a medical man: it is not so; the military surgeon, who has passed much of his time in active service, well knows how much of the comfort and health of the troops under his care, as well as that of the sick themselves, depends on an efficient cuisine.

The second section, on *cleanliness*, is very short and meagre. This is an important item in the sanitary condition of troops: no one unaccustomed to soldiers, would believe the amount of dirt which often lies hid under that array of pipe-clayed belts,

and polished buckles, and tightly-fitting tunics. When soldiers are quartered in barracks not supplied with baths, or where they cannot have the advantages of river or sea-bathing, dirt accumulates rapidly on their persons. We wish Mr. H. had enlarged on this point, and given the weight of his authorship in impressing upon military authorities in general the importance of providing ample bath accomodation in every barrack.

The section on dress is interesting; but it is evident the question has not been so publicly discussed in America as in England; and yet, in what have all our discussions ended? The old institution of the "leather stock" remains *sacred.* The guardsman holds like grim death to his bear-skin, and in consequence occasionally drops dead in the ranks on the march. Our semi-denuded friends, the Highlanders, still strut in the "garb of old Gaul,"—very picturesque, it may be, but not always useful or comfortable, and certainly never decent. We have seen many a stalwart Scot under arms, his teeth chattering with cold, trying in vain to pull his scanty petticoats over his shivering knees, realizing too well the play upon words, that the difference between an Irishman and a Highlander before Sebastopol was, that the latter was cold with the *kilt*, while the former was *kilt* with the cold? We were much amused the other day, when witnessing a sham-fight, with a column detached from Aldershot, near Woolmer Forest,—a distinguished Highland regiment was advancing up a hill over very rough heathery ground, well studded with thistle and furze; the regiment was ordered to "lie down," as the enemy had opened fire in their front; it was easier said than done, for men so scantily protected with garments; whereupon the colonel apologised to the general, that it was rather an uncomfortable spot for kilties to squat in and certainly Sandy seemed to think so himself. Surely sufficient nationality might be maintained without subjecting the men to so much discomfort. Let the deer-stalker wear it if he likes; let Cameron, and Farquharson, and Frazer, perform their war-dances in their native glens, in whatever war paint they choose; but, in the name of common sense, and comfort, and decency, give the soldier his *trowsers*, and cover his legs like those of other men.

We pass over the chapters on hutting, barracks, and hospitals, which do not contain much that has not been already openly discussed in our public journals; and that on the hygienic management of troops on the line of march, which we think the best and soundest, most useful and practical in the

book. The young medical officer may study it with much advantage, there being few places where his forethought and carefulness are more required, than when troops are marching.

The next chapter, on the conveyance of sick and wounded soldiers, is one of interest; the subject is all-important; any medical officer who served in the Crimea, and marched with the army from its landing to the heights of Inkerman, must have seen the misery caused by insufficient means for the conveyance of disabled men; and yet, strange to say, this question is not settled yet by our own authorities. It is true, in the medical regulations of the British army it is laid down that each battalion in the field of 850 strong is to have the following—

For medical panniers, ...	1 mule.
Cart for surgical equipment, ...	2 Do.
Ambulance car, to follow in rear of the battalion, and capable of carrying from 6 to 8 sick, with 14 stretchers, and light operating table,	2 Do.

And so on for a brigade of three regiments, and a division of six regiments, in proportion; but, to the best of our belief, these equipments exist on paper only; we do not believe the pattern of the cart, or the car, is even decided upon; and we cannot but fear that, if preparations of this kind are not made to some extent at least in time of peace, they will not be forthcoming when required for war.

In Mr. Tufnell's museum, established by him with so much industry and care, and most generously transferred by him to the army medical school at Chatham, very many specimens of inventions for the conveyance of sick and wounded are collected; mechanical contrivances of varied kinds in the shape of cars and carts, stretchers, ships' bunks, panniers, portable operating tables, tents, and huts, and apparatus for field cookery; and scarcely a week passes without some new invention arriving at Whitehall Yard for the inspection and patronage of the Director-general. With regard to the ambulance car to follow every battalion on field service, we know nothing better than the one invented by Mr. Tufnell himself; we have seen this ambulance, and believe it is at present in the carriage department at Woolwich, where we hope it will be taken as a pattern for the regimental equipment. It is in a form familiar to Irish readers, namely, a Bianconi's car, and is furnished with every particular requisite for a battalion. We would be glad, not only for the credit of our fellow-citizen, but for the advantages it would bring to the

service, to see it paraded in the rear of every regiment proceeding on active service.

The difficulty of obtaining a field-stretcher or litter, sufficiently portable and light to be easily carried, and at the same time strong enough to bear a man's weight, has long been felt; invention seems almost exhausted on this matter. As a rule, the simpler these contrivances, the better. In the equipment of the army hospital corps, we trust the authorities will see the necessity of furnishing them well in this particular. We have seen lately a litter invented by an officer in the household of the Emperor of the French, which is one of the best that has come under our notice. The stretcher consists of two parts; each man carries a "half" attached to his knapsack; and when any two men meet, the stretcher is complete. It is strong, and very portable; we have seen it tested, and believe it to answer the purpose admirably; and we hope to see it permanently introduced into the service of the army.

In section 4 of this chapter, on conveyance of sick and wounded, there is a description which we quote of a wheeled ambulance invented by Mr. Cherry, which appears to possess many advantages, and has met with the approval and commendation of Sir George Ballingall.

"Of the various plans, Ballingall thinks that the carriage invented by Mr. Cherry is by far the most ingenious which he has seen. It is intended as a 'hospital and commissariat' transport at the same time; and since the wounded need generally to be carried in a direction opposite to that in which the provisions, forage, etc., are to be carried, this may convey the latter to the army and bring back the former.

"It is a light single-horse cart, so constructed as to be readily adapted either to the carriage of stores and provisions, or to the conveyance of wounded men; for these two different purposes a great part of the frame-work is moveable, and capable of being adapted to the object required. A number of moveable spars or poles are stowed on the outside of the cart, which may in a few minutes be unpacked and placed upright round the frame-work, adapting it to the carriage of bulky articles of forage, such as hay or straw. Some of these spars, again, are fitted to be placed as ridgepoles on the top of the uprights, for the purpose of supporting a canopy for the protection of the sick or wounded. It now becomes a most commodious sick-cart, capable of conveying one person lying at length on a board within, or four men sitting erect on seats, which are suspended from a rope running round the interior of the cart, and giving the advantage of its elasticity in addition to the springs. The seats, when not used for this purpose, form a moveable part of the bottom of the cart, under which are boxes for containing the bearer and canopy when not wanted for

their respective purposes. The most ingenious part of the contrivance is that by which the ordinary springs of a cart or other carriage may be protected from injury when carrying heavy loads, while at the same time it admits of their free use when light loads are carried. This is effected by two moveable blocks sliding along the axle-tree; and which, by means of a lever connected with them, may either be moved outwards under the frame-work of the cart, so as to make its weight bear directly on the axle without injury to the springs, or, by turning the lever in an opposite direction, the blocks may be withdrawn from under the side-pieces of the cart into the hollow space formed by their thickness, and the springs thus again brought into action."

This closes the author's examination of those subjects not purely medical or surgical,—the adjuncts, as it were, of military surgery, without a competent knowledge of which, the surgeon, be his professional skill what it may, is only half-instructed, only half-prepared to meet the exigencies of a battle-field, or to contribute to the maintenance of the efficiency of those committed to his charge.

In chapter 9, on gunshot wounds, Mr. Hamilton first treats of the eccentric course which balls sometimes take after impinging upon the surface of the body; he does not cite any cases from his own experience, but relates the well-known one reported by Hennen, of a ball which struck the pomum Adami, and was found at the orifice of entrance, having gone completely round the neck.

Balls are easily deviated from a straight course after striking the body, especially if they come in contact with bone. Surgeon-major Matthew, in the report of the army medical department for 1859, relates a case of a soldier of the 86th regiment who was wounded at Jhansi by a musket-ball, which perforated the left triceps muscle, from without inwards, apparently grazing the humerus, and thus obtaining a rotatory motion, then entered the left side of the belly, over the eleventh rib, does not appear to have injured the rib, but to have hugged the skin, and made exit towards the opposite side of the body, and after a passage of 9 inches, making its exit through the muscles arising from the internal condyle of the right humerus; in this case, complete paralysis of extension of the little finger, and partial paralysis of the ring-finger of the left hand ensued.

The question may here be asked, Has the character of gunshot wounds been altered or modified by the changes and improvements which of late years have taken place in projectiles? Mr. Hamilton states his opinion on this point thus:—

"The peculiar shape, great velocity, and rotary motion of conical balls impress certain characteristics upon the wounds which they

inflict. They seldom deviate from a direct course after entering the body, nor do they often split; they produce great comminution of the bones; and when the range is short, the wound is generally smaller than that made by the round ball; but if the range is great, and the part thinly covered with soft tissues, then the wound is larger, especially at the point of exit; and more lacerated."

While we agree in some respects with this statement, we have at the same time reason to believe that the wound produced by such a bullet as that used in the Enfield rifle, which generally expands as it leaves the barrel, is larger and more lacerated than that inflicted by the circular ball.

With regard to the extraction of bullets, Mr. H. speaks highly of a forceps invented by Tiemann of New York. He gives a sketch of the instrument, but he also plainly states the great disadvantage belonging to it; namely, that the blades being furnished at their points with small teeth, like the incisors of a mouse, intended to pierce the projectile, without the necessity of grasping its entire calibre, are consequently available only for the extraction of leaden balls, and would be useless in the removal of splinters of shell or small grape-shot. There have been numerous inventions and improvements in this important instrument of late years. Mr. Weiss has invented an excellent one; Coxeter has produced his; Mr. Tufnell has likewise contributed to the surgeon's armoury in this particular; they have each their separate advantages and peculiarities. Without stating our preference, we think that no military surgeon should be content with having only one description of bullet-extractor in his case: if he fail with one, he may succeed with another.

The following is the author's procedure in arresting hemorrhage, after the removal of the missile. To this treatment we have nothing to object, save the use of the persulphate of iron: if, as Mr. H. asserts, he has seen evil consequences arise from its use, we think it had better be omitted:—

"Having removed the missile, it may become necessary, yet such is not often the fact, to take measures to arrest the hemorrhage. If it is slight and proceeds from small vessels, cold or iced water may suffice; or if it is more considerable, we may sometimes resort to moderate compression; or, what is usually much better, to the persulphate of iron. This, diluted one-half or more, may be injected into a deep wound by the syringe with which I have supplied my field-case, or it may be laid undiluted on an open bleeding surface with a camel's hair brush. I have seen the persulphate of iron, injected into the cellular structure produce inflammation; it is not, therefore, so innocuous as that it can be thrown into the long track

of a bullet, without some chance of its doing mischief. When the vessel is too large for the bleeding to be restrained by these means, we must at once proceed to tie the artery from which the hemorrhage proceeds—in the wound if we can—and perhaps that can be done by laying it freely open; but if we cannot reach it here, we must cut down and tie above.

"If a tourniquet becomes necessary, we prefer the ordinary screw tourniquet, invented by J. L. Petit.

"In an emergency we may employ as a substitute the simple field tourniquet, composed of a strap and buckle, either with or without a pad; or a simple cord, twisting it tightly with a stick, a pistol, or any short weapon.

"Ordinarily no other treatment or dressing is necessary for a gunshot wound, than to lay upon it a piece of lint saturated with cool or cold water. Sometimes, however, the condition of the parts demands that the applications should be warm, so as to encourage the return of its vitality.

"Baudens, who served in the Crimea, recommends ice as a first application. The English surgeons in the same expedition employed the water dressings to the exclusion of almost everything else; but Surgeon McLeod thinks that 'when inflammation and suppuration are present, *hot* applications will always be found of most good.'

"If water irrigations are employed, a very simple method is to bore with a gimlet a hole in the side of a pail, near the bottom, but not so near as that the dirt which settles in the pail will escape through the hole. Insert into the opening a piece of a goose-quill, and draw through this a few threads of common candle wicking. Placing the pail upon a table, or suspending it above the limb, the candle wick terminating upon the piece of patent lint with which the wounded member is covered, the water diffuses itself gently and equally over the whole surface."

With regard to gunshot wounds of the head, the author cites the following most extraordinary case:—

"Gunshot wounds of the head are generally fatal, whether the ball passes entirely through or remains within the skull, and this is especially true of gunshot wounds of the anterior half and base of the brain. Yet the exceptions to this rule are numerous. One of the most extraordinary cases of recovery upon record, probably, is that of the man Gage, who was shot through the head with a tamping iron, three feet seven inches in length, one inch and a quarter in diameter at its largest end, and weighing thirteen pounds and a quarter.

"The accident occurred in 1848; and Dr. Harlow, of Cavendish, Vermont, in whose practice the case occurred, described the wound as commencing just anterior to the ramus of the inferior maxillary bone of the left side, taking a direction upward and backward to-

ward the median line, passing through the left anterior lobe of the cerebrum, and making its exit at the junction of the coronal and sagittal sutures; lacerating the longitudinal sinus; extensively fracturing the frontal and parietal bones; breaking up a large portion of the brain, and protruding the globe of the left eye from its socket by nearly one-half its diameter.

"In 1860 this man was still living, and in the enjoyment of good health, with no impairment whatever of his mental faculties."

After this, we think, no case of injury of the head need be despaired of; truly the freaks of nature are very remarkably illustrated in cases of this kind. In the Pathological Museum of the British Army at Fort Pitt, there are some curious specimens of severe injuries of the head which did not cause death at the time. There are several instances of fracture of the cranium with extensive depression of the inner table, but which were not fatal at the period of the infliction of the injury; and the writer of this review remembers to have met a soldier late in the evening of the action of the Alma, walking about the village of Bulganak, with a bullet driven into the centre of his forehead. Such cases are inexplicable; it is difficult, if not impossible, to assign a reason why one man will be rendered insensible, and death will result from a fracture of the skull which can scarcely be discovered; while another, who has suffered an injury so severe that at first sight hope seems extinguished, will recover safely and rapidly.

Mr. Hamilton analyses at considerable length the relative merits of hot and cold applications to gunshot wounds, giving the opinions of experienced men upon the subject. When we reflect upon the difficulty of obtaining any other than cold applications on the field, we can hardly imagine how there can be any choice in the matter.

The chapter closes with some practical remarks upon penetrating wounds of the thorax—these are trying cases; the surgeon can do little in the way of manual interference; but Mr. H.'s views are sound and clear:—

"The examination will therefore consist, generally, in a limited exploration of the track of the wound, especially with a view to determine whether any pieces of clothing have been carried in, and in an inspection or careful digital manipulation of the opposite side of the thorax. Auscultation is only serviceable at a later period, nor can it be practised satisfactorily during the agitation usually consequent upon such an injury. Bloody expectoration furnishes almost positive evidence that the structure of the lungs is penetrated. The absence of this sign, however, is not proof so positive that the lungs have not been penetrated.

"The treatment consists in covering the wound with a pledget of lint, saturated with cool water, the employment of sedatives, and of antiphlogistics. The patient must be requested to lie upon the wounded side, or in such a position as that the orifice shall be depending, unless the wound is on the front of the chest. Often this is impracticable, certain positions being more painful and interfering more with the respiration than others. We have no choice then but to leave the patient to adopt that position which he finds most comfortable."

His remarks upon the "expectant" treatment of wounds of the abdomen are also of value:—

"To give to our patient, therefore, the best chance of recovery, we have to pursue an almost expectant plan. He must be laid upon his back, with his body a little flexed; a piece of adhesive plaster should be made to close the wound completely; he should be allowed no drink or food for several hours, unless it be a little ice-water or small pieces of ice at intervals. Everything received into the stomach, however bland, is apt to excite peristaltic motion, and to endanger extravasation; no cathartic or even enema; he should not be permitted to turn to the right or to the left in bed, or get up for any reason whatever. If he suffers much pain, opiates and poultices may be necessary; and eventually leeches or the lancet may be demanded."

But on two points we differ from him entirely—first, as to closing the wound with adhesive plaster, which, when the intestine may be perforated, should never be done. The wound, on the contrary, should be left open, and, if necessary, enlarged, to favour the exit of extravasated matters; for the viscera of the abdomen so completely fill the abdominal cavity, that if there be free exit through the wound, there is little danger of any matters effused from a wound of the intestines passing into the general sac of the peritoneum; and, secondly, we would have recourse to the free use of opium from the very beginning.

We now proceed to the question of amputation, discussed in chapter 10, which contains many points of practical importance. In the first instance Mr. Hamilton lays down the cases demanding amputation in army practice:—

"There are several questions relating to amputations, which need to be considered briefly, and in their proper order.

"First.—*What conditions of the limb in army practice demand amputation.*

"Simple fracture of a limb, it is unnecessary to say, does not demand amputation.

"A fracture complicated with considerable laceration of the skin, or of the skin and muscular tissue, does not of necessity demand amputation.

"A fracture, with laceration of the main arterial trunk supplying the limb, does not necessarily demand amputation. If the artery can be tied, the limb may be saved, and the fracture treated successfully.

"A fracture, accompanied with the laceration of one or more of the principal nervous trunks, does not always demand amputation, yet it is a graver accident than the one last supposed.

"A fracture, complicated with a destruction of both the principal arterial and nervous trunks, occurring in the course of a large limb, like the thigh, the leg, the arm, or the forearm, renders amputation necessary.

"Similar lesions, without a fracture, render amputation almost equally imperative.

"Comminuted fractures, accompanied with extensive lesions of the soft parts, or with a rupture of either the principal artery or the principal nerves, in the case of large limbs, generally demand amputation in army practice.

"Compound fractures, with either of the above complications, in large limbs, generally demand amputation.

"Compound fractures of the *femur*, without other complications, in army practice, *generally* demand amputation.

"Fractures accompanied with extensive and violent contusion, demand amputation oftener than the same fractures accompanied with open laceration.

"In army practice, gunshot wounds which penetrate the shoulder-joint, the elbow-joint, or the wrist-joint, demand either amputation or resection. (Guthrie says, that an arm will endure almost any amount of injury, without demanding amputation.)

"Gunshot wounds penetrating the hip-joint are generally fatal, yet amputation may be practised under some very favourable circumstances. Resection also presents a feeble ground for hope.

"Gunshot wounds of the knee or ankle-joint demand either amputation or resection. The knee more certainly than the ankle; and amputation is more often required than resection. Guthrie has seen no recovery from a gunshot wound of the knee-joint, unless the limb was amputated. Nearly all army surgeons confirm this experience.

"Gunshot wounds, in which the ball does not actually enter the joint, but in which the bone is struck above or below, and the line of fracture extends into the joint, are subject to nearly the same rules as that class of cases in which the ball enters the joint; but the rule is less imperative.

"Gunshot wounds penetrating the carpal bones do not generally exact amputation; but the same wounds penetrating the tarsal bones, generally render amputation necessary.

"Gunshot wounds through or between the phalanges of the fingers or toes, or through the bones themselves, are often cured without amputation. Similar wounds of the fingers or toes do not in general result so favourably; but the rule in this latter case cannot be stated very positively."

In reference to the practice of conservative surgery in cases of gunshot injury of the thigh, we have read with special interest the statistics bearing upon this point, as set forth in the Statistical, Sanitary, and Medical Report of the British Army Medical Department for 1859. These statistics are furnished by J. R. Taylor Esq., C. B., Inspector-general of Hospitals, and the cases were under the care of Surgeon-major Matthew. We copy some of his remarks, and one of the tables he has drawn up on the point.

"The preceding tables show, of the Indian wars as compared with the Crimean war, that the thigh-stump cases arrived home from India are a fraction more numerous than those from the Crimea, in proportion to the total arrived by all wounds; and that the recovered cases of gunshot fracture of the femur also arrived are, in proportion to the total wounded, four times more numerous from India than from the Crimea. In other words, the proportion of thigh-stump cases being so nearly the same, the gunshot fracture of the femur cases from India, over and above the proportion from the Crimea, may be received as representing the proportion of cases of this description of wound lost there by amputation, or by less favourable circumstances of service. The difference, I believe, is to be explained by the better appliances and means attending field hospitals in India, and the less frequent practice there of amputation in this description of wound. The difference is not to be explained by difference of missiles; for in the Peninsular war, where no other than the 16 to the pound bullet was used, the impression of surgeons experienced in the surgery of that war was, that in only few exceptions should a gunshot fractured thigh not at once be amputated. This rule greatly influenced the practice of surgery in the Crimean war, and hence, in a considerable measure, I believe, the less favourable results thence than from the mutiny in India, when surgeons were not only deterred from amputation of the thigh by the Crimean experience of the fatality attending that operation, but were more inclined to attempt preservation of the limb by the better means at hand for the conveyance and treatment of such compound fractured thigh cases.

"I subjoin brief extracts of ten of the cases of gunshot compound fracture of the femur, and of the thirteen thigh-stump cases referred to in the preceding remarks:—

ABSTRACT OF TEN CASES OF GUNSHOT COMPOUND FRACTURE OF THE FEMUR.

	Rank, Name, Regiment, Age, and Service.	Place and Date of receipt of Wound.	Description of Wound, and site of Fracture.	Results, as observed at Fort Pitt.
1	Private Patrick Carty, 64th Regt., aged 28. Total service 10.	On the advance to Lucknow, 29th July, 1857.	Musket ball penetrated right thigh in region of trochanter major, fracturing the bone at or just below that process, and again at middle third, where the ball appears to have lodged.	April, 1858.—Wound long since healed, and fractures firmly united. Limb shortened about 2½ inches, but in other respects good, and he walks well, with little lameness, and without crutches or stick. Sent to modified duty, 6th Sept. —Discharged to pension, 22nd Dec., 1859, by Horse Guards' order.
2	Private John Ashworth, 53rd Regt., aged 29. Total service $9\frac{4}{12}$.	On the 1st Nov., 1857.	Musket ball perforated right thigh, fracturing the femur in its upper third.	July, 1859.—Wounds healed and bone firmly united, leaving so good a limb that he was sent to modified duty on 6th Sept. The shortening was under 2 inches. June 1859.—Limb, with the exception of shortening, perfectly good, but he is now discharged to pension, being unfit for all duties.
3	Private Joseph Hewitt, 52nd Regt., aged 27. Total service $9\frac{4}{12}$.	At Goodespore, 12th July, 1857.	Musket ball penetrated front of left thigh, fractured the femur in its upper third, and was cut out behind at lower edge of glutæus.	July, 1858.—Wounds healed, bone firmly united, 1½ inches shortening; but there remains a good useful limb. Discharged to pension, 22d July, 1858.
4	Corp. Edward Collins, 75th Regt., aged 32. Total service $14\frac{2}{12}$.	Delhi, 8th June, 1857.	Perforated musket ball wound, fracturing the femur in its upper third. Ball recorded to have been extracted.	July, 1858.—Wound healed, bone united, ends overlap, and callus large; 2½ inches shortening; has, nevertheless, a good useful limb, and he walks well. Passed to modified duty, 6th Sept., 1858, but discharged to pension by Horse Guards' order.
5	Private James Burke, 53rd Regt., aged 26. Total service $9\frac{11}{12}$.	Lucknow, 16th Nov., 1857.	Musket ball penetrated front of left thigh, fractured femur at middle third, and was cut out at inner and posterior aspect of limb.	Aug., 1858.—Wound healed, fracture united, 1½ inches shortening. Has a good useful limb, and walks so well that he was sent to modified duty on the 16th Sept., 1858. Discharged to pension, 10th June, 1859.

ABSTRACT—*continued.*

	Rank, Name, Regiment, Age, and Service.	Place and Date of receipt of Wound.	Description of Wound, and site of Fracture.	Results, as observed at Fort Pitt.
6	Private Samuel Hunter, 93rd Regt., aged 21. Total service 3.	Cudjee, 1st November, 1857.	Musket ball perforated left thigh, fracturing bone at junction of middle and lower third.	Sept., 1858.—Apertures of entrance and exit of ball healed, but there is a sinus through which dead bone is detected; 1 inch shortening; great deposition of callus, obstructing motions of knee joint. Discharged to pension, 5th December, 1858.
7	Private William Cunningham, 1st Bat. 8 Foot, aged 31. Total service $13\frac{6}{12}$.	Delhi, 14th September, 1857.	Gingall had passed across front of left thigh, fracturing the femur at junction of upper and middle third.	April, 1859.—Wound healed. This is an unfavourable specimen of recovery with the limb on, because of the fractured ends having been allowed to overlap and unite at an angle, causing $4\frac{3}{4}$ inches shortening; but with the help of a mechanical contrivance furnished by Mr. Bigg, the man is able to get about. Discharged to pension.
8	Private Samuel Shaw, 53rd Regt., aged 36. Total service $15\frac{6}{12}$.	Lucknow, 23rd Feb., 1858.	Perforating musket ball wound, fracturing the femur in the lower third.	May, 1859.—Wound lately healed, bones firmly united; $1\frac{1}{2}$ inches shortening; knee joint stiff; walks, however, very well. Discharged to pension, June, 1859.
9	Private George Williams, 24th Regt., aged 29. Total service 10.	Umritsir, 18th October, 1857.	Musket ball entered right groin below Poupart's ligament, external to the vessels, and passed out behind great trochanter, fracturing the femur, probably through the trochanter.	June, 1859.—Opening of entrance and exit healed, but a sinus open behind, leading to dead bone. There is about $1\frac{1}{4}$ inches shortening. The man remains in Fort Pitt, having lately suffered erysipelas of the injured limb, which no doubt, however, will be eventually good and useful. He is now in good health.
10	Private John Curtis, 86th Regt., aged 35. Total service $14\frac{2}{12}$, of which 13 years in India.	Mendesoor, 23rd Nov., 1857.	Musket ball entered left groin, and passed out obliquely near great trochanter, fracturing the femur just below that process.	June, 1859.—Necrosis of fractured ends; openings not quite healed; $3\frac{1}{4}$ inches shortening; health good. This soldier remains at Fort Pitt to be fitted with an apparatus like that given to private Cunningham.

Such statistics as these are strong inducements to practise conservative surgery; at the same time it is possible to carry it too far, and Mr. Matthew gives judicious warning on the subject. He instances a case of compound comminuted frac-

ture of the femur in a private of the 8th Foot, and describes it as being "a very unfavourable example of the results of treatment of this description without amputation; the limb is only an incumbrance, the shortening is from 4½ to 5 inches, and there is great deformity."

In reference, also, to cases of gunshot wounds through the phalanges of the fingers or toes, which Mr. Hamilton declares are often cured without amputation, Mr. Matthew cites the following case:—

"Private Patrick Kennedy, 1st Battalion, 5th Foot, was wounded on the 2nd December, 1858, at Mohee, by a musket-ball through the web of the ring and middle finger of the left hand, shattering the adjacent phalangeal and metacarpal bones. I call attention," says Mr. Matthew, "to this case, because it well illustrates the malpraxis, to which I am sorry to have to say, the abuse of the fashionable term, 'conservative surgery,' often leads. If both the metacarpal bones were shattered, there can be no doubt the finger should have at once been amputated, and the fragments cleared away. Had this been done, in all probability the forefinger and little finger would have remained useful; as it is, all the fingers are now stiff in the extended position: the ring-finger, by bony anchylosis to the metacarpus, and the others by adhesions of tendons; the hand is almost utterly useless, and there is little or no prospect of improvement. It appears to me," adds Mr. Matthew, "that this is 'conservative surgery' in the wrong direction."

We cannot, however, dismiss the question without calling to mind one of the triumphs of conservative surgery, in the case of a private soldier upon whom the operation of resection and removal of the head and a large portion of the shaft of the femur was performed by Mr. O'Leary, surgeon of the 68th Regiment, in the Crimea.

We saw this man after his return to England; and the writer was present when he was examined by Guthrie, then fast sinking into the grave, who seemed to derive great satisfaction from contemplating the success of an operation which he had advocated twenty years before.

The "method" of amputation is also considered by the author in this chapter, and the relative merits of the flap and circular operations discussed.

He states, which we believe to be the case, that preference is generally given to the former in the field; on this point the surgeon must be guided by the peculiar circumstances under which he finds himself placed; no rule can be laid down; if he is much hurried, as in retreat, and he is required to move

his wounded at short notice, and if they are pouring in rapidly upon him, he must then, undoubtedly, have recourse to that operation, which will save time, and enable him to attend to a larger number of cases. If, on the other hand, he is with an advancing column, with well-organized field hospitals in his rear, and good transport at hand, it is our belief, with that of Mr. Hamilton, he will find the circular method—at all events, as regards the thigh and arm—less hazardous than the flap, and more likely to secure for the patient a useful stump.

On the question of the use of anæsthetics in the field, Mr. Hamilton, after analysing the opinions of several military surgeons in the English, French, and American services, sums up his opinion in these words:—

"Finally, after comparing our own experience with that of others, we will state our belief and conclusions as follows:—Anæsthetics are of inestimable value in their effects as remedial agents, and in their power to extinguish sensibility, temporarily, and especially during the performance of severe surgical operations; but we prefer ether to chloroform, as being the least liable to destroy life; and we would never employ either when the system was greatly prostrated by disease, or by the shock of a recent injury, unless the patient exhibited an unconquerable dread of the pain of the operation, or the operation was likely to prove exceedingly painful.

"It is our opinion, also, that anæsthetics sometimes, and especially chloroform, prevent the union of wounds by adhesion, or by 'first intention.'"

We mainly concur with the author in his view of this highly important matter, and we think most military surgeons who have seen much active service will, to a great extent, corroborate his statements; here, again, the surgeon must be guided by circumstances. For example, in a general action, where large numbers of wounded are brought in rapid succession to the surgeon's rendezvous, many requiring immediate operation, all more or less suffering from the depressing effects of the "shock," with the prospect of their being exposed, perhaps for nights, with but indifferent shelter, or having to undergo the suffering and fatigue of transport, we think, under such or similar circumstances, the surgeon will do well to pause ere he exposes such cases to the additional depressing effects of so powerful an agent as chloroform. But we cannot, however, endorse the author's opinion with regard to anæsthetics preventing union by the first intention: we do not think this statement is borne out by experience either in military or civil practice.

Our readers, doubtless, have not forgotten that most un-

happily worded memorandum issued by Sir John Hall, the principal medical officer of the Crimean army, previous to the battle of the Alma. Although, in common with the whole medical profession, we deprecate the manner in which his views on the use of chloroform were couched, we cannot but admit at the same time that in principle they were not erroneous.

We by no means wish to convey the idea that we object to the use of that which we cannot but regard as one of the greatest blessings ever conferred on suffering humanity; and while we would advocate its administration in all cases—unless specially contra-indicated—where the patient can be housed and kept at rest, and in some measure of comfort, we cannot too strongly combat its indiscriminate application to the urgent cases and sudden emergencies of a battle-field where troops are in motion.

We will now close our observations on this volume, with a few remarks on the chapter relating to "dysentery;" and we might here inquire of the author why he has omitted the subject of cholera from his pages?

If dysentery can be classed under the category of "military surgery," so may cholera. If, as Dr. Watson asserts, "there is no malady which is so crippling to an army in the field," surely cholera may be considered equally so. Who that saw the numbers of men who dropped to the rear, and died on the march to Sebastopol, or witnessed the hospital tents crowded with hopeless inmates after the Alma, or remembers how many strong men succumbed to this disease on the heights of Inkerman, can doubt that its onset is more deadly than the bullets of the enemy. It is true, perhaps, Mr. Hamilton could not have thrown much additional light on the subject of its treatment; but a chapter on this question would have been a good addition to his book, and might have drawn the attention of the young medical officer to at least the preventive measures most likely to be of use during an epidemic of this most fatal malady.

On the treatment of dysentery, Mr. Hamilton advocates strongly the use of opium in large doses, after the judicious administration of saline purgatives, and states that he has witnessed the successful exhibition of "the sulphate of morphia in doses of a grain *hourly*, continued during the twenty-four hours for several days, in a case of sévere epidemic dysentery, without the production of any of the phenomena of narcotism."

We do not intend to criticize this mode of treatment; we would rather draw the attention of our military readers to what

we think a safer and surer method, as set forth in a paper by Dr. Massey, surgeon, 2nd Dragoon Guards, reported at page 280 of the Army Medical Report of 1859, and having special reference to the treatment of acute dysentery by large doses of ipecacuanha: this treatment was first used by Mr. Docker, surgeon, 7th Fusiliers, in the Mauritius, in 1855; and his views were published in the Lancet of the 3rd July, and the 4th August, 1836.

Speaking of his success, Mr. Docker says:—"In all constitutions, robust as well as delicate, under all circumstances, the result is the same;" and Surgeon Massey endorses that opinion in the following terms, and gives a detail of his plan of treatment:—

"In nearly every case of acute dysentery, when first seen, half an ounce of castor oil is at once given, with a view of clearing out scybalæ and vitiated secretions. As soon as the oil has freely acted, say in from four to six hours, a drachm of ipecacuanha is given in a little water, a mustard plaster having been applied to the stomach about half an hour previously, at which time, likewise, thirty drops of laudanum are given. Mr. Docker's view on this point seems to be that the mustard plaster and laudanum tend to enable the stomach to retain the ipecacuanha. I regret to be at issue with him in any portion of his remarks, but I have not found the same tolerance of the stomach for large doses of ipecacuanha that he seems to have experienced. I sometimes have encountered difficulty in this respect; but it seldom happens, I imagine, that the entire drachm can be thrown up, even when sickness is quickly induced. When one dose is rejected, I usually give a second soon after; this generally succeeds, but if not, by waiting a few hours the object is often readily effected. If great sickness and retching are caused by the medicine when given in fluid, it is often retained if given with a little opium in five grain pills, three or four at a dose; and two or three drops of hydrocyanic acid, given a little before the ipecacuanha, often assists its retention. I have likewise exhibited it frequently in the form of infusion in enema with tinct. opii, but I am not satisfied that I have seen very marked benefit from this mode of exhibition. It has commonly been as an adjunct to medicine given by the mouth. I have no case to record of treatment solely by enemata of ipecacuanha. The ingenuity of the prescriber may be taxed to provide that a sufficiency of the drug be retained, but by a little management it has hitherto always occurred to me to succeed. I have noticed that intolerance of the stomach to large doses of ipecacuanha was more

frequently encountered in weakly men than in the more robust; and when dysentery had existed for a few days, there has been less power in retaining the medicine than in cases submitted to early treatment. Mr. Docker's statement to the effect, that if the medicine is retained for even a quarter of an hour before sickness is induced, it seems to exert its beneficial influence, is to be borne in mind. This, doubtless, results in a great measure from the circumstance that only a portion of the ipecacuanha is thrown up. Whenever tolerance from the first prevailed, a speedy cure, thorough and complete, was the result.

"In cases of acute dysentery the effect of one or two large doses of ipecacuanha is usually to produce one or two feculent motions, and the disease terminates. There is in general no gradual alteration of secretion or other symptoms, the disease seeming simply to end; confinement to the recumbent position for a day or two and farinaceous diet are alone necessary; pain, tormina, tenesmus, procidentia ani, blood, mucus, jelly-like secretion, all cease; the appreciable action of the medicine, being a few bilious loose motions. But in some instances the ipecacuanha does not act so speedily, or with such decided benefit, and its exhibition at stated invervals may be necessary for two or even three days. Not infrequently the intolerance of the stomach for the medicine prolongs the treatment.

"Again, though the dysentery is cured, a degree of looseness of the bowels may continue for a short time; and in cases where dysentery has prevailed for some days before treatment is sought for, the cure is usually somewhat protracted. I have also seen occasionally a troublesome symptom continue, I allude to the formation of scybalæ. This tendency, or at least the condition that creates it, is so liable to lead to the invasion of fresh symptoms of acute disease, that, as long as it lasts, it is always to be watched and prescribed for; but, as has been before observed, the remedy finally succeeds.

"Numerous cases might easily be quoted from the Hospital Register, but it will probably be deemed equally conclusive to present two short returns, the one embracing the period included by the General Return of 1858, and the other that of the year 1859. In the year 1858 the ordinary treatment practised in India of late years was pursued, consisting chiefly of leeching, preparations of mercury with small quantities of ipecacuanha, opiate enemata, counter-irritants, &c. In the year 1859, the treatment was exclusively that by large doses of ipecacuanha. In 1858, 103 cases of acute dysentery were

admitted into the regimental hospital, 7 of chronic, and 5 cases remained over from the previous year, making in all 115. Of these, 14 died, and 3 were invalided to England, being a loss to the service of something less than 1 in 6 from deaths and invaliding. In 1859, there were admitted 115 cases of acute dysentery, 3 of chronic, and 2 remained over from the previous year, giving a total of 120 treated. Of these, 2 died and none were invalided, causing a loss to the service by deaths and invaliding of 1 in 60. The return of 1859, therefore, shows a great contrast with that of the previous year; and still more is it deserving of notice, from the fact that of the two deaths recorded in 1859, one occurred in a thin weakly man, who had frequently suffered from dysentery before; and the second, though included in the return as dying under the head of acute dysentery, actually died suddenly from heat apoplexy when a patient in hospital for the former disease.

"How, then, does this medicine act? A feasible idea appears to be that the portal system is relieved by action upon the liver and small intestines; the free feculent bilious motions would argue this; but then the portal system can be relieved in other ways, yet the dysentery remain uncured. Leeches to the anus will unload the vessels to some degree; mercurial purgations often produce a cholagogue effect, which would tend to relieve the portal circulation; yet these means do not cure dysentery as ipecauanha does.

. . . . . .

"Dr. Corrigan, of Dublin, has pointed out the value of ipecacuanha in emetic doses in jaundice. Considerable experience has convinced me of the truth of Dr. Corrigan's statements on this subject, but I have long held the opinion that the ipecacuanha exerted other influence than the mere mechanical effect of an emetic. It appears to me, that no other means so effectually or so speedily produce an action on the liver and small intestines as ipecacuanha, in large doses, without inducing other deleterious effects. Mercury, it is true, acts as a cholagogue, but it also often acts as a drastic purgative. It irritates the inflamed mucous membrane.

"In addition to the effects of ipecacuanha just mentioned, it seems to be powerfully sedative. It lowers the pulse, and induces diaphoresis, possibly by the nausea it creates. Possibly in a similar way may be produced its influence upon the peristaltic action of the bowels, which is often the most remarkable immediate effect. Frequent purging and straining are allayed on taking ipecacuanha, often as soon as one large free motion occurs. It is difficult to suppose that the entire power

of the medicine is expended upon this secretion, or that a single motion could give rise to such immense results, unless there was some marked sedative action."

Our task is now done, and we close this little work, which, as we have said, presents a few imperfections, some serious omissions, and possesses, perhaps, but little originality; but, so far as it goes, we believe the views of the author to be in general sound and practical. We close it in hope—first, that it may be followed by larger and more extended editions; and, secondly, that it may act as the pioneer to other works on the same subject from our own countrymen. The Army Medical Service is sadly in want of literature bearing upon questions of great public importance; we know there are medical officers in the service, of experience and ability, who are quite able to fill up the blank in this particular. A sound practical work is required, not purely on military surgery, "*per se*," but upon military medical science in its entirety, embracing every point likely to meet a medical officer in the performance of his duty in peace and war. In proportion as medical officers are conversant with their professional and official duties, and prompt and energetic in the discharge of them, in the same proportion will they be regarded with respect by those in command. No class of men have more faithfully served their country, or more nobly discharged their arduous, and often thankless labours; they earn no golden rewards; but when we reflect upon how many breasts of such "non-combatants" the Victoria Cross glitters; when we remember that in the ranks of the medical department there are such men as Jee, and Mowat, and Sylvester, who have not obtained the emblem of courage and valour by any act of reckless daring from motives extraneous to their professional calling, but in the holy cause of saving human life, we congratulate the British soldier, that amid the smoke, and din, and blood of battle, such help is likely to be found.

"Patent certantibus campi—manat undique cruor—salus una restat moribundis,

"Ecce chirurgus!"

1. *Du Climat d'Alger dans les Affections Chroniques de la Poitrine, &c., &c.* Par le Dr. P. de Pietra Santa, Medecin (par quartier) de S. M. l'Empereur. Paris: Baillere et Fils. 1860. 8vo. pp. 128.

2. *Climates for Invalids: or, a Comparative Inquiry as to the Preventive and Curative Influence of the Climate of Pau, Montpellier, Hyeres, Nice, Rome, Pisa, Florence, Naples, Biarritz, &c., &c.* By A. Taylor, M. D., F. R. S. E. London: Churchill. 1861. pp. 283.

3. *Handbook for Southport, Medical and General.* By D. H. M'Nicoll, M. D. London: Churchill. 1861. pp. 214.

It has seldom been our lot to meet with more readable books on climate than the two whose names are placed at the head of this list. The first especially we look upon as a most valuable acquisition, as we are convinced that Algeria will eventually take a very leading place among the localities best suited for the hygienic treatment of pulmonary complaints. We must, however, commence by finding fault: it is an unfortunate knack that reviewers have fallen into, and it is no easy matter to break us of such habits,—but our excellent friend, Dr. de Pietra Santa, fully justifies us, at the very outset of his excellent little work, where, at page 5, he says:—

"If the description of the field of battle be necessary for the intelligence of the deeds done, and the different reverses which have constituted the great struggle which took place on it, so the knowledge of places destined to be a winter station," &c. Nothing can better lead to the comprehending of a hard fought battle than a good map; and we much regret that both Dr. de Pietra Santa and Dr. Taylor's books are deficient of such. As for Dr. M'Nicoll's little book, the want of a map there is a minor consideration.

It was in 1859 that the French government, fully awake to the daily increasing importance of its possessions in Algeria, sent Dr. de Pietra Santa to study the climate of that colony, placing means and facilities at his disposal, beyond the reach of a mere private explorer. The result of the author's labours is now before us; and we proceed to give an account of it to our readers, in as concise a manner as is consistent with the merits of the work.

Dr. Taylor's book, which we have also read with much pleasure, is a different production altogether, and would probably meet with more approbation from the non-professional reader

than Dr. de Pietra Santa's. It is the result of very many years' careful observation, not untinged, however, by a certain amount of bias for a place which the author has made his home; but the book is written in such pleasant style, and the information it conveys is so varied, instructive, and agreeable, that we forgive the exuberant praise he bestows on Pau; for although we are ready to acknowledge some of its advantages, we cannot absolutely blind ourselves to its unmistakeable drawbacks.

1. Dr. de Pietra Santa divides his book into three chapters. The first is devoted to the consideration of the climate of Algiers; the second, to the general conditions (statistics) of phthisis in Algeria; and the third, is on the influence of its climate. Commencing with a description of the country, he says—

"French Africa is a vast territory, bounded on the north by the Mediterranean, for a length of about 1000 kilometres. It is traversed about its centre, on a line parallel to the Mediterranean, by an alpine chain, known by the name of the Atlas; the southern limits, not so well defined, are lost in the great desert of Sahara, somewhere about the thirty-seventh parallel of northern latitude; on the east it is bounded by the regency of Tunis; on the west, by the Empire of Morocco. . . . The climate of Algiers is intermediate between ours and that of the tropics. . . . . The topographic position of Algiers, sheltered from southern winds, is improved also by those winds which come to it from inland, as, being warm, they serve to keep up the temperature of the nights, while the sea breeze, on the other hand, helps to maintain a uniformity of temperature. . . . Nothing can be more lovely, more picturesque, more health-instilling, than the country about Algiers." Then follows a well written desription of its *environs*, its suburbs, and its villas, nestling among clumps of orange trees, pomegranates, and carobs, its fountains and its aqueducts, concluding with an elaborate account of its climate; to which are appended thermometrical, barometrical, hygrometrical, and ozonometrical tables, the interest and importance of which cannot be over-estimated. Having then come to the conclusion of his first chapter, the author passes to the study of the inhabitants of Algeria, and the statistics of phthisis in it. It will be seen by the following table that the European population *exceeds* the native by rather more than $2\frac{1}{2}$ to 1, and in both natives and Europeans the male sex exceeds the female very considerably:—

European Population.

French,			26,000
Spanish,			13,000
Italians,			3,000
Anglo-Maltese,			2,000
Other Nations,			2,152
Males,	24,365	=	46,152
Females,	21,787		

Native Population.

Musselmans,			11,933
Israelites,			6,916
Males,	11,180	=	18,849
Females,	7,669		
Total population,			65,001.

The native population consists of Berbers (the most ancient inhabitants descended from the Getules and Numidians of old); the Arabs, who emigrated into Algeria in the seventh century; the Moors (inhabiting the sea-coast), of complex and uncertain origin—they have fair skins, the men are addicted to commercial and sedentary pursuits, while the female portion of the community pass their time in absolute idleness, dividing their existence between the bath and the divan, excepting an occasional pilgrimage to the burial grounds; of Koulouglis (descendants of Jews and native women); of Jews, very numerous and decidedly commercial, and having markedly retained all the characteristics of their race; of Negroes, either slaves, or descendants of slaves.

The Arabs are a healthy race, and hereditary diseases are unknown among them, and for a very simple reason—living in the most primitive state, and constantly exposed to the greatest hardships and privations, a delicate, rachitic, scrofulous, or phthisical child never is reared to man's estate, and sinks into the grave before it has had time to procreate its species and perpetuate its diseases. At page 57 we find an interesting statistical mortuary table, from which we gather a mortality of 4·24 per 100 among the Europeans, and 3·39 per 100 among the natives; and for the next forty-three pages one constantly meets with every possible variety of statistical tables, illustrating the rates of mortality from fever, phthisis, and other diseases, among Arabs, Mahometans, Europeans, Jews, &c., &c., rates of mortality among native and European children, &c., &c.

We now arrive at the third chapter, which the author commences as follows:—"From the lengthened researches detailed in the second chapter, two facts are deducible: on the one hand, we have a greater rate of mortality for all diseases in general than in France; while, on the other hand, we have a lesser rate than in Paris and London in chest affections, and more especially in phthisical cases."

He then quotes the opinions of many physicians, who for numbers of years have practised in Algiers; he follows up their observations with several interesting cases treated by himself, and concludes with the following opinion on the curative powers of the climate of Algeria in chest diseases:—

In cases where tuberculosis is at its commencement, and when only those symptoms are present which constitute the first stage of phthisis, the benefit will be most marked. In more decided cases, such as might be considered as tuberculosis in the second degree, the benefit will be less marked; while it is fatal to those cases, of the third degree, in which there is softening and disorganization.

2. We now turn to Dr. Taylor's work on Pau—we emphatically say, Pau, lest any one should be led away by the title-page, and expect to find in it some information about the *seven* other health-resorts mentioned in it, and which are barely noticed, with the exception of Biarritz. It is, however, a very pleasant book to read, no small recommendation in itself. It is also a useful book, full of interesting information and valuable hints; but let us hear the author for himself:—

"The climate of the south-west of France, of which Pau may be considered the centre, is almost *neutral* in its properties, rarely showing a surplus either of humidity or dryness, free from winds, sedative in its character, and soothing to the nervous and circulating systems; and diseases of the chest are rare among the natives." . . . . "The Pyrenees, an almost unexplored country by the English tourist, afford ample field for recruiting the mind and invigorating the body. Here the scholar, the botanist, the mineralogist, the artist, and the sportsman will find varied and ample occupation."

Chapter four is excellent:—

"It is surely not too much to expect, that where, in a given climate, we find among the native population a marked absence of a scrofulous and lymphatic habit of body, and consequently the presence of a state unfavourable to the deposition of tubercles in the lungs and elsewhere, the same qualities of climate would tend to prevent the development of the worst results of such a habit of body in strangers hereditarily predisposed."

No reasoning could be better; but, notwithstanding all this, and the unfavourable opinion Dr. Taylor entertains of Nice, Naples, Pisa, and Madeira, we know that for certain forms of tuberculosis these are better climes than Pau. Foreign climates have been greatly brought into disrepute by the injudicious manner in which some medical men have ordered their patients to them. Go abroad, has been the word, or go to the South of Europe, forgetting that in the South of Europe there are the greatest varieties of climates, and that even at a few miles' distance the most decided change may be found, as between Nice and Mentone, only twenty miles apart! Mentone, which Dr. Taylor completely ignores, is perhaps the most favourably situated locality in Europe for the treatment of tuberculosis, and inferior to no other, Egypt excepted, or Algeria.

Chapter sixteen commences as follows:—

"There is a considerable advantage to the invalid who passes the winter in Pau over that which he would have in many other places of temporary residence on the Continent, that at the end of the season there are many outlets open to him either for purposes of health or recreation."

Following up with an excellent description of Biarritz, from which Dr. Taylor carries the reader away to Bagneres de Bigorre, Bareges, Capbern, and away through the Pyrenees to Spain, and back again, in the most delightful manner possible, till one either actually fancies himself there, or is dying with the wish to be there. Gentle reader, are you a disciple of Izaac Walton? Listen:—

"The Gave at Cauterets is a stream, the sight of which would make the heart of an angler leap with joy. It is neither too large nor too small, neither too limpid nor too dark, neither too rapid nor too slow, shaded occasionally by high banks, but not shaded by trees. It possesses but two drawbacks, nearly fatal to the enjoyment of a thorough angler. The fish are so numerous as to insure a nibble at every cast, and so simple-minded and credulous that every nibble proves a take!"

We now take leave of Dr. Taylor and his book, and recommend it warmly to those who wish to learn everything about Pau and that part of the world, but we again caution them that there are other places besides Pau.

3. The next work on our list is "A Handbook of Southport." It will, no doubt, prove of service to those intending to spend a summer in that locality, whose principal advantage lies in its being of so easy access,—only eighteen miles by rail from

Liverpool on the west coast of Lancashire, between the mouths of the Mersey and the Ribble. Two-thirds of the book are devoted to the natural history of the surrounding country; and, notwithstanding some misprints, more attributable to negligence than otherwise, it will be found useful to those fond of natural history. The descriptions of the zoophytes is good and plain; and the list of plants gives, not only the Latin but the English names also, thus rendering it of greater value to the non-scientific reader.

Operationslehre und statistik der Resectionen. VON DR. OSKAR HEYFELDER. Wien: 1861.

The Mode of operating in, and the Statistics of Resections. By DR. OSKAR HEYFELDER. Vienna: 1861. Royal 8vo, pp. 399.

THE book before us is not only a complete treatise on resections, but includes in its pages the description and treatment of diseases of bones not implying resection of necessity. It is divided into two portions: the first is devoted to the general consideration of the subject; the description of the instruments most generally used, of which there are some excellent delineations at the end of the book, and a catalogue of all the authors who have written on the subject of resections, commencing with the name of Diemerbroeck, in 1687, and ending with Bauer, in 1859. In this list we read with pleasure the names of Sir P. Crampton and Dr. Butcher,—the first being associated with the Dublin Hospital Reports for 1827, the other with the more recent numbers of our own Journal,—thus showing that the Dublin School is recognised, even abroad, as having been prominently foremost in this, perhaps the greatest improvement of modern surgery.

Dr. Heyfelder commences by dividing his subject into resections of bones, and resections of joints; he then describes those cases where resection of the entire bone is necessary, giving a general view of the mode of operating, and then proceeds to those cases in which partial excision only is required; he then passes to consider the operations for the removal of exostoses, then to operations required in the treatment of necrosis, gouging and trepanning of bones for the liberation of sequestra, and finally to the treatment of abscess of bone. He then takes up the subject of resections of joints, commencing with a historical review of the literature of the subject, in

which he gives British and Irish surgeons the credit of having been the first to perform these operations, naming Crampton, in 1827, and Syme, in 1831; and to Butcher, Smith, Jones, and Fergusson he gives the entire credit of again bringing them into notice, after having fallen for years into disuse. Having given a general view of those cases in which resection of an injured or diseased joint is to be preferred to amputation of the limb, he adds a short description of different modes of operating; and then, commencing the second part of his book, plunges boldly into his subject, entering fully into the description of each joint, its anatomical relations, its diseases, the special cases in which resection should be adopted, and the different modes of operating; adding a list of all the authors who have written upon the subject, and concluding with a short and comprehensive statistical table, showing the date of the operation, name of operator, disease for which the operation was undertaken, together with the result of every case of the special operation of which he is treating, that he has been able to collect.

The first subject that Dr. Heyfelder takes up for consideration, in the second portion of his work, is excision of the head of the femur, and in the statistical table at the end of the article, we find no less than 71 cases enumerated, commencing with the name of A. White, who first performed this operation in 1818, and ending with a successful case, operated on by Esmarch in 1859.

Thirty-three of these seventy-one cases terminated favourably, not only surviving the operation, but making a good recovery. Among them were three children, aged respectively 5, 4½, and 3½ years; and we could not avoid noticing that the majority of successful cases were under 20 years of age, though one is recorded by Jones, Jersey, as old as *thirty-two*. Against these 33 successful operations, we have 33 deaths, among which we find two respectively of 54 and 44 years of age. Two died apparently from shock; one 30 hours, and one 3 hours, after the operation. Both were of the same age—20 years, and both operated on by the same surgeon. Five cases remain to be accounted for, and of three we have no record. The statistics of this operation are not nearly as favourable as those of other resections—that of the knee and elbow, for instance.

Proceeding down the limb, he gives an account of the operations for removal of the great trochanter in cases of diseases affecting that portion of the femur—resections of portions of the entire thickness of the bone, to rectify deformities resulting from fractures; and concludes the operations on the shaft of the bone, by detailing an *opération de complaisance*,

which has been only performed by A. Mayer, and only twice by him, but with perfect success:—"A little girl, 9 years of age, in consequence of a congenital dislocation of the left hip, suffered from a shortening, by 2 inches, of the limb on the same side; Mayer made an incision in the outer side of the vastus externus muscle of the right limb, and removed from the lower-third of the femur a piece of bone, corresponding in length to the shortening of the left limb, preserving at the same time as much of the periosteum as possible. The bones were kept in apposition by means of *Malgaigne's spikes*, (*Malgaigneschen stachels*), and in half a year the girl walked perfectly." We abstain from making any comment upon the case, as there is not much fear of such practice being ever adopted in this country; but stop to observe that Malgaigne's plan of fixing bones in apposition by means of *spikes* screwed into them has not obtained favour among us, though we believe it to have been fairly tried in fractures of the patella,—not with that uniform success, however, which that celebrated Parisian surgeon claims for his barbarous invention; and as for the operation itself, we can only say that it was purely an "*opération de complaisance*," partaking more of the carpenter's trade, than the science of surgery.

The next important operation which Dr. Heyfelder describes is resection of the knee-joint; and here again is the "*Malgaignesche Schraube*," Malgaigne's screw, brought into active use. If we had any fear of these spikes ever coming into promiscuous use in this country, we would hasten to raise our voice against them; but after the brilliant successes detailed in our own pages by Dr. Butcher, as having been obtained without their aid, we need entertain no fear of their ever being adopted. Dr. Heyfelder's description of the usual modes of operating are good, but not as full as we would wish; and especially is he deficient in the little niceties of after-treatment,—nursing, supporting, stimulating, and calming, upon which so much of the success depends. He concludes the subject, as usual, by a statistical table, containing the results of no less than 183 operations from Filkin, in 1762, to Heyfelder, in 1859.

These tables constitute, in our opinion, one of the principal merits of this work, and they display an amount of industry and research that redounds to the credit of its author. We thus learn, from the table before us, that of 183 cases of resection of the knee-joint operated on in the course of 97 years, the results were 125 cures, 54 deaths, and in 4 the result was unknown; that in 19 cases the limb had eventually to be amputated; and that of the deaths 18 were the result of pyemia.

This depends, probably, on two causes—one, the well-known increasing ratio of mortality observed in amputations, the closer these are performed to the trunk; the other, arising from the fact that in resection of the knee and elbow-joints all the diseased surfaces are at once removed, and with them the source of irritation and hectic, while in resections of the head of the femur some amount of disease often remains in the acetabulum, which cannot be safely gouged out, and remains there, in addition to the severe operation undergone, to aid in running down the patient. On the whole, this operation offers no great temptation to the practical surgeon; for it must be observed that the 71 cases recorded were not even all cases of total resection, but many were only partial excisions, from which better results might have been expected; while in the statistical table of resections of the elbow we find the history of 207 cases, among which we read of only 24 deaths to 158 good recoveries, and 25 cases of which the result is unknown.

The value of such statistics cannot, in our mind, be over-estimated; and we consider that the thanks of the profession are due to Dr. Heyfelder, for having furnished us altogether with 2662 cases of resections, embracing 1616 cures, 452 deaths, 173 unsuccessful attempts, and 421 cases of which no account is forthcoming.

The author is evidently not over-partial to chloroform; and in that formidable operation, resection of the upper jaw, seems to discard it entirely. This repugnance to the use of chloroform strongly prevails even in this country, and many among us have a considerable prejudice against its use. We wish much to see such prejudice abandoned. Chloroform is either dangerous, or it is not: if it is, it should not, in our opinion, be ever employed, except at the express desire of the patient; but if it is not dangerous, why deprive an unfortunate sufferer of the blessing of undergoing even a trifling operation in a state of unconsciousness? We do not deny for an instant that many deaths have occurred *under* chloroform, but we do not believe that all those deaths resulted from chloroform. We remember upon one occasion, somewhere about the year 1858, that a patient, having been brought into the operation room, was about to be placed under its influence, when no chloroform could be obtained, and the operation was proceeded with as usual. The patient died from shock. Had he been previously inhaling chloroform, that death would have been added to the long list already laid to the score of that precious fluid, of which none can well appreciate the value, until they have proved in their own person its wonderful effects.

In conclusion, we conscientiously recommend this book: it contains all that is known about the subject on which it is written; and the accomplished surgeon, as well as the advanced student, will feel themselves well repaid by its perusal. The author is already well known to British surgeons by his valuable papers in our own Journal, and we have much pleasure in informing our readers that he purposes to continue his contributions to our pages.

Health and Disease as Influenced by the Daily, Seasonal, and other Cyclical Changes in the Human System. By EDWARD SMITH, M. D., LL. B., F. R. S., &c. &c. London: Walton and Maberly. 1861. pp. 409.

THERE are few subjects of more importance than those treated of in the volume before us, nor are there many whose investigation is attended with more difficulties, or on which the physician is more frequently appealed to by society. The popular mind is full of traditions and surmises as to the influence of cyclical changes, many of them utterly erroneous, but largely influencing the conduct of life for good or for evil, in health and in sickness. Medical attendants are expected to be familiar with all these theories; their directions as to treatment of disease and the preservation of health are brought to the test, not unfrequently, of their agreement with them; and many a young physician is, at the outset of life, involved in difficulties because of his want of precise and accurate information as to the influences exerted on the vital processes by the changes of the hour, the day, and the season. The early fathers of medicine devoted much attention to these matters: their writings are much occupied with the consideration of the operation of external agencies on living beings; and the influence of season in the treatment of disease was constantly recognised by them. The present era has attached little value to the imperfect knowledge of those times, but still has not hitherto brought to bear on these questions "the faculty of exact research," which is beginning, Dr. Smith says, to be its own characteristic. This reproach can no longer, however, be cast on the present age; for Dr. Smith has devoted himself, with a perseverance and an energy of purpose, that must excite not only admiration but wonderment, to the investigation of all the processes of life, and the effects produced on them by the various external influences to which man is subjected. For this purpose, he has neither spared himself nor his household: all have been sub-

jected to experiments of fasting and of feasting, of sleeping and of watching; the ingesta and the egesta have been weighed and analysed; the influences of posture, of season, of day and of night, of youth and of age, of rest and of exercise—all have been sought out, and their history recorded here, forming one of the most remarkable, valuable, and useful books we have ever met with. Some of the deductions drawn from the investigations may, no doubt will, be modified hereafter, for the path had scarcely been trodden before; but Dr. Smith has erected the sign-posts whereby future investigators must be guided. Let us hope they will soon follow, and add to the abundance of our riches.

The daily cycle, or the changes occurring in the system during the circle of the twenty-four hours, under the influence of food, of light, of air, of rest and exercise, and the many other changes occurring throughout the day, is first considered. The results of the investigations are fully detailed in the first chapter of the book, and then the doctrines these scientific researches inculcate in reference to health and disease are fully stated. The phenomena occurring with ordinary food in healthy individuals of various ages—6, 8½, 33, 36, and 39—are first treated of, beginning with *pulsation* and *respiration*. The pulse and respiration had, it is true, been investigated by many observers before Dr. Smith; but the observations made were deficient in many particulars, more especially in that they did not extend over the whole twenty-four hours. Dr. Smith instituted two sets of inquiries, one as to health, and the other in cases of phthisis—the first embracing hourly observations on five persons, including children, and extending over three days and nights; and the latter on six adults of both sexes, extending over six days and nights without intermission. The general conditions imposed were: precision in the hours of meals, and of rising and retiring to rest; absolute rest during at least five minutes before each inquiry; and rigid attention to the hour, to the order of the cases, and to the method of counting and registering the rate of the functions. The posture selected was that of lying, as that alone is possible during sleep; but for the purpose of showing the progressive changes throughout the day, any of the postures uniformly maintained is of nearly equal value. The true effect of posture, and of its variations during the day, was determined by a third series of inquiries. In the first series of inquiries, the subjects were all, except the author himself, living under their ordinary conditions, and taking a suitable amount of food, viz., breakfast at 8½ A. M., dinner at 12½, tea at 5½, and supper at 8½ P. M.; but Dr.

Smith kept awake during the whole period, and ate food twice during each night, so that the observations on himself were made under exceptional circumstances.

The results of these fatiguing and laborious observations, which on the whole correspond closely with one another, are shown in a series of tables, and still more clearly by skilfully-designed diagrams. On examining these, it is observed that, in all cases alike, the rate of both pulsation and respiration was increased during the day, and diminished during the night; and, as these changes did not occur abruptly, there was a period of increase in the morning, and decrease in the evening. There were great variations in the rate of the pulse at the several hours of the day, greater in the day than at night,—there being in the day three or four marked elevations, followed by corresponding depressions. The elevations followed the various meals, and were commonly the highest after breakfast, and within two or three hours after the meal. The depressions preceded the taking of food; and of these, that which preceded the breakfast was by far the greatest. The periods of lowest pulsation during the day were commonly 8 A. M. and midday, or the periods immediately preceding breakfast and dinner. The average increase in the rate of pulsation per minute, due to the meals, was, in the children, from *breakfast*, 14 to 16 beats, in the adults, 12 to 16; from *dinner*, in children, 9 to 17, and in adults, 10 to 11; and from *tea*, in the former, 5 to 8, and in the latter, 3 to 7 beats per minute. The *supper* scarcely affected the rate. The average increase per minute in the rate of respiration in all the cases combined was, after breakfast, 4·4, after dinner, 2·1, and tea, 2·1. There was also an increase observed during the act of eating, which disappeared in the intervals of the courses. Dr. Smith sums up his observations on the general course in the daily cycle of pulsation as follows:—

"In the evening, from 7 to 9 P.M., there is an evident tendency in the rate to decline, and with some slight variations this is continued progressively through the following hours until from 1 to 3 A.M., when the rate is at its minimum. During the next two hours there is a slight tendency to increase, but it is very gradual until the usual hour of rising, when it will have attained an increase of several pulsations per minute. Immediately after the breakfast has been taken there is a rapid and great increase, which attains its maximum in the second hour afterwards, after which it declines greatly in an hour, and loses from ten to fifteen pulsations immediately before the dinner. After the dinner has been taken there is another increase, but the rate is seldom raised so high as

that which follows the breakfast, and the highest point is attained in the second or third hour. This again is followed by a decrease which precedes and a subsequent increase which follows the tea, when a point as high as that which follows the breakfast is usually found[a]; and lastly there is the final decrease, which is usually progressive, notwithstanding that supper may be taken at a later hour. When dinner had been taken at a later hour than that above indicated, the rate of the functions followed the same course as that now given, except, that there was not any important increase after mid-day until the dinner hour. The rate remained low, but not uniform, from 12 to 1 P.M. until the dinner hour.

"The extreme difference was sometimes thirty pulsations per minute, and was the greatest in the children."

The effect of posture on the frequency of both pulsation and respiration varied in different individuals, and even at the different hours of the day in the same individuals. In both children the effect was much greater at 8 P.M. than at any of the other periods of the day the pulse being at this hour 11·5 beats per minute quicker when sitting than it is when lying, and 17 when standing; but in adults the converse was observed, the effect being greater in the morning than in the evening. The youngest of the adults, a female, was more affected by the change of posture than even the children—the increase from the lying to the sitting and standing postures being in the morning, 12 beats in the sitting and 27 in the standing position per minute; at mid-day, 9 and 14·6 respectively; at 5 P.M., 7·3 and 12; and at 8 P.M., 3·5 and 10.

In phthisis the same progression in the phenomena as that recorded of healthy persons was observed, but the extremes were much greater. The total rate of the functions was higher; the difference between the rate of the day and the night was much greater, oftentimes more than 40 pulsations per minute; and an increase of 35 to 40 pulsations per minute was commonly found after breakfast. The rate was more uniform, and the depression of the night was greater, in the women than in the men. While as regards the pulse, the only remarkable difference as between health and phthisis is the extreme variation, in the latter, of the night and day rate. In reference to the respiration, the singular fact was noticed in most of the cases, that the rate increased in the night in a most evident manner, and fell in the morning on waking, so much frequently as 12 to 15 respirations per minute, though the pulse fell dur-

[a] This does not appear so in the table or diagram: the increase from tea is there shown as about one-half of that from dinner, and one-third of that from breakfast. —Rev.

ing the night and rose in the morning. On the whole average of the women, the increase in the number of the respirations was nearly 7 per minute, from 10 P.M. till 11 P.M., when they fell asleep; and there was an average, though less, increase until 6 or 7 A.M. The average increase in the men was 1·7 per minute from 10 P.M. till 11 P.M., and 4 per minute at midnight, from which hour the increase gradually subsided. The cause of this increase is not very clear; but it seems to have been connected somehow with sleep, as it subsided immediately on awakening, no matter at what hour this occurred. The effect of posture in phthisis was found to be greater than in health; and, as in health, it lessened in the evening.

The hourly variations in the quantity of carbonic acid evolved by the lungs were next investigated, for which an ingenious apparatus was devised. It was found that these presented a striking similarity to the variations of the pulse and respiration already described. There were commonly four *minima* and three *maxima* in the daily quantities of carbonic acid evolved, the former found immediately before each meal (except supper) and during the night, the latter following each meal. The largest increase commonly followed breakfast and tea, and then the total quantities evolved were nearly identical; while there was a great similarity in the minimum quantities recorded at the end of the intervals between the meals. This variation was due to food, but there was a low point below which the quantity did not fall.

"In experiments made to determine the amount evolved under the influence of not very profound sleep, it was found to be 4·88 grains and 4·99 grains per minute, at 1 and 3 A.M.; but we estimated the amount at $4\frac{1}{2}$ grains per minute in profound sleep. Hence, commencing at from 1 to 3 A.M., the period when the lowest amount of carbonic acid is evolved (4·88 and 4·99 grains with sleep, and 5·7 and 5·94 grains when scarcely awake), it was found that there was an increase at about 6 A.M., when it amounted to a little more than 6 grains per minute, and at 7 A.M., after rising, to 7 grains per minute. The effect of the breakfast was to cause a total increase of $2\frac{1}{2}$ to 3 grains per minute, in from one to two hours, followed by a decrease of 1 to $1\frac{1}{2}$ grains per minute before the dinner. There was commonly an increase after dinner of about 1 grain per minute, and usually a decrease from that period to the hour of taking tea; but on some occasions, as on March 12, the quantity remained high until after the tea had been taken. After tea there was again an increase of from 1 to $1\frac{1}{2}$ grain per minute, and the highest point of the day was attained. At about 7 o'clock a fall began to occur, and the decline progressed to the extent of 2 or 3 grains per minute at the hour of bed-time, but sometimes after sup-

per, the quantity remained somewhat elevated until a later hour. After retiring to rest, at 11 o'clock, the quantity fell steadily until 1 to 3 A.M., when the minimum was attained."

The quantity of air respired, and of urea and urinary water eliminated, were found to undergo changes concurring very closely with those of the pulse and other vital processes. The same increased activity in the morning and decrease in the evening and at night took place, which, as regards urea, is contrary to the opinion generally held, viz., that it is most abundant in the evenings. The quantity of water corresponded closely to that of the urea, the water being most copious when the urea was most abundant, and both were found to be largely influenced by the quantity and nature of the food and drink.

Fasting.—The conditions of the same vital processes during fasting were next inquired into. The two children and the three adults fasted during nineteen and twenty-three hours respectively, and the rates of pulsation and respiration were determined in each case sitting, lying, and standing. It was found that the average rate of the functions was lessened during the fast; but that when the fast had ceased, and a full meal was taken, the rate increased in the evening so much beyond the usual rate at that period, that as the total average of the twenty-four hours the results were nearly the same as if no fast had occurred, showing the power of compensation in the system. The rate of both functions remained low at the breakfast hour, or the period when it usually rose with food; and in the cases, aged 8½ and 33, even fell from the rate observed before the breakfast hour. After this a low and tolerably uniform rate of the functions was maintained. But there were two periods at which an elevation of the rate occurred, which it is desirable to notice; the first was between 9 and 10 or 10 and 11 A.M., and the second between 12 and 3 P.M., being the periods at which there was generally an increase with food, but now the increase was observed, though no food had been taken, and no external cause of excitement had occurred. The diminution in the rate of pulsation during the whole period of fasting from that which ordinarily occurred with food was from 8·8 to 13·8 pulsations per minute in the different cases, and 10 on the whole average. The proportionate diminution in the rate of respiration was somewhat less, but it varied from 4 to 3 respirations per minute.

The quantity of carbonic acid evolved during fasting was remarkably uniform throughout the whole day; but still there was a tendency, as in the case of the pulse and respiration, to rise at the hours when it usually does so under the influence

of food. On the whole day, there was a diminution of 25 per cent.; but the quantity of carbon evolved was nearly 6 oz., an amount equal to that contained in 20 oz. of bread, or $7\frac{1}{2}$ oz. of fat.

Thus, while during fasting the daily cycle of changes in the carbonic acid expired, and the same applies to the quantity of air inspired, are reduced almost to a nullity, there is a progressive decrease in the rate of pulsation and respiration, and also in the quantity of vapour evolved by the lungs; but in all these points of inquiry alike, there is a lower condition existing in the night than the day.

The quantity of urea and urinary water excreted in the course of a fast of $29\frac{1}{2}$ hours, during which 30 oz. of water were drunk at four periods of the day, was observed. The hourly variations were found to follow exactly the same course as that observed when food had been taken; and no remarkable diminution in the quantity evolved was noticed until the night, at which time the quantity was, perhaps, somewhat reduced. It was remarked that the water drank had a great influence over the quantity of urea eliminated, an increase being produced by each draught, though there had been a progressive diminution taking place before it.

Practical Application to Health and Disease.—We now proceed to consider the application of the foregoing results to practical purposes, and first take up *the assimilative processes*, and the conditions which occur in the function of nutrition at the various periods of the day. This subject Dr. Smith introduces as follows:—

"It has been abundantly shown that there is more vital action proceeding at one part of the day than at another. The very great effect of the breakfast, as shown both by the great increase in the rate of pulsation and respiration, and in the elimination of urea before midday, proves incontestibly that the morning period is that of the greatest vital action; whilst, as the day advances, the food taken at the different meals does not cause an equal increase in the rate of the functions, and the amount of urea is usually lessened hour by hour. The results of all our inquiries seem so decided upon this point, that we are justified in regarding them as the exponents of natural laws in the conditions as to meals in which the experiments were made, and as indications that this is the condition most conducive to health. We will now proceed to consider this subject in detail."

It is argued, that in the morning hours, digestion and assimilation are performed in their most natural, and therefore most healthy manner, and that that period especially demands

an abundant supply of nutriment. Breakfast ought to be taken early, before any labour is undergone, and it ought to be abundant and nutritious. The habit of taking a quantity of tea and coffee at this meal is inadvisable, for these infusions contain very little nutritious matter; and as the assimilative function is naturally active in the morning, there is no necessity for them as stimulants of it. Taking milk as the fluid required at this meal, conjoined with oatmeal and bread, and reinforced, if need be, with fat, eggs, or other solid materials, Dr. Smith thinks far more consistent with the requirements of the body.

The increase of the vital action was evident so soon as daylight, was powerful in summer, but was not marked until the hour when, by common consent, men usually rise, viz., about 6 or 7 A. M.; it was observed during the morning sleep, was progressive till the breakfast hour, even when the person remained in bed, but was increased on rising. Any great amount of labour before breakfast can only be performed at a great expense to the system, for with labour there is increased waste, and before breakfast there is no material to supply it. The weak, and those too whose vital powers are deficient, should eat early, and, as far as may be, a sufficient breakfast. Many of the latter class found relief in times past, Dr. Smith says, in the very early administration of rum and milk, a combination pre-eminently fitted to afford nourishment, and to increase the vital powers concerned in the assimilative process; and it is a matter of some gratulation, he says, that this, which was formerly an old woman's nostrum, has now received the sanction of science, and is duly supported by the opinions of medical men.

In the conditions preceding, or occurring early in phthisis, the early administration of food is of great importance; and in the excitement of fever and inflammation, in the craving of convalescence, and in the exhaustion of debility, it is evident that if the administration of food be at any time proper, it is in the early morning, for at this time there is less feebleness of the assimilative process than at any other period of the day. But to no class is the early and abundant meal of so much importance as to children. In them the increase of the vital functions in the early morning is even greater than in adults; their systems are more sensitive to adverse influences; and the interval of the night, during which no food is taken, must not be too prolonged. An abundant and early breakfast is essential to them; to withhold it is to induce a feeble and ill-nourished system, and lead to an ill-developed man,—to induce disease, and lead to an unnecessarily early grave.

The rate of pulsation and respiration, and the evolution of carbonic acid, were found to be the greatest one or two hours after breakfast, and at four to five hours after the meal were reduced to the lowest point of the working day. Hence an early dinner is to be recommended; and as it is to be taken at the period of the day when bodily and mental labour is in full activity, it should be nutritious; but after the mid-day meal, the supply of nutriment should be more limited, for the chemico-vital processes are now lessened, and towards evening they rapidly and progressively diminish, as shown by the slow pulse and diminished excretion of carbonic acid and urea at this period of the day; but the use of tea and coffee, and such alimentary and respiratory excitants, is now very beneficial.

As the vital processes are lessened in the evening, and rapidly diminished at about ten or eleven o'clock at night, it is evident that Nature is thus not only conserving the system by lessening the waste then proceeding, but is seeking those most natural and necessary restoratives—the horizontal position and sleep; and it is our duty to listen to her dictates; hence *early retiring to rest is clearly indicated;* and food should not be taken at night, except in cases of great debility, in young children, and in night watching.

Variations in the Quantity of Blood.—Though it cannot be demonstrated by an exact admeasurement, yet there are good and sufficient reasons to believe that the quantity of blood varies from hour to hour. The period of the day when there is the greatest quantity of blood is about two hours after each meal, and it is usually greatest in the afternoon; but this depends much on the period of meals, and the amount and kind of food and drink taken. A little reflection shows that the quantity of blood must vary; the food and drink taken into the stomach must be absorbed into the blood-vessels before it can be applied to the wants of the system; and though this occupies time, yet it takes place sufficiently rapidly to affect materially the quantity of the circulating fluid.

The increase after a full meal is probably a pint, or one-thirtieth of the entire volume of the blood, and manifests itself by increased fulness and frequency of the pulse. It commences within a very few minutes after the beginning of a meal, and increases during a period of one and a half to two and a half hours, and then declines to a low point before the next meal; consequently, the *dangers resulting from an excess of blood occur chiefly in the evening, and increase after each meal.*

These dangers result either from the rupture of a blood-vessel, or from the arrest of the circulation at the heart, or in other vital organs. The former is more purely due to the increase in the quantity of blood, and will manifestly correspond to the period of greatest distention of the vessels (exertion being excluded from these observations). The latter is commonly conjoined with some obstruction to the current of the blood, as in the capillaries of the skin or liver, or some defect in the vital power of the heart to duly propel the column of blood, and is consequently variable as to the time of its occurrence. But apoplexy commonly follows a meal, or occurs late in the evening, as do also active congestions and inflammations, not directly resulting from exposure; and it is manifest that all those persons who are predisposed to these dangers should both be watchful at the periods indicated, and seek to restrict the increase of the blood within narrow limits.

The dangers from defect of blood occur mostly in the middle and advanced hours of the night, also in prolonged intervals between meals, and after unusual emissions of fluid. In cases of phthisis and general debility, in the profuse perspirations, of which there is a loss probably of 2 lbs. of fluid, and in cases of diarrhœa, where there is a great diminution of the quantity of blood, and in less extreme cases, where the interval between the meals is too prolonged, the danger will be proportioned to the remaining power of the system; and those who are feeble, whether from disease or from defective constitution, will be the most ready to succumb, and that at the period when the vital powers are lowest, viz., during the night. In such cases, it is important to supply food with fluid, frequently and abundantly, at the periods of danger, and of such a nature as to sustain the action of the heart, and to lessen the action of the skin, that is, such foods as milk, coffee, and alcohols.

Change of posture materially increases the dangers, whether from excess or defect of blood; but it is the act of change that is dangerous, consequently in all such cases this should be made gradually.

Variations in the heat of the body is the next subject discussed by Dr. Smith, and he does so under the three heads of the production of heat, the dispersion of heat, and the actually existing temperature of the body. He shows that the production of heat is greatest when the vital processes are most active, that is, during the day, and within two hours after each meal, especially the early meals; and that it is at a minimum during the night, before breakfast, and at the end of the interval between meals. Hence travellers, and those who are

exposed to injurious influences and night-watches, should take food at these times, and resort to artificial heat. The sick, the delicate, aged persons, and young children, suffer especially from defective heat at these periods, and those in charge of them should be especially warned as to the dangers of the morning hours.

Capability of bodily and mental labour.—The period best fitted for bodily labour is from the breakfast until the evening: between these periods the vital actions proceeding in the body are greatest, and there is every preparation made by the body to sustain muscular exertion, and to repair whatever waste it may occasion. Dr. Smith argues, that, on the important question of shortening the hours of labour a great mistake is made, and that the relief is given at the wrong end of the day; it would be, says he, much better for the workers that no laborious employment should be entered on before 7 A.M., and then not till after breakfast; and the activity of the vital processes shows that it might be continued till 7, or perhaps 8 P.M. At these hours the system would be best fitted for work, and to supply the waste consequent on it; and the health and powers of the workers would be sustained, the work consequently better done, more advantageously to the employers, and more adequately to the hours occupied and the money paid for it. The period in the day in which the human system is *most* vigorous and fitted for labour in our climate is, he says, from about 8 or 9 A.M., until 4 or 5 P.M., but it is sufficiently vigorous for a longer time; and if, instead of three meals a day at long intervals, with a single long interval of rest between 8 A.M., and 6 P.M., there were shorter intervals for rest and for meals, it is very probable that more work would be done, and at a less cost to the workmen. For mental labour the periods when the vital processes are not most active seem to be best suited, especially the morning and evening, and next to these, before dinner, the activity produced by breakfast having been allowed to subside.

Periods of the attacks of disease, and the administration of remedies.—No part of the subject can have greater interest and importance than that which points out the natural variations of the day and the periods when the attacks of disease are most imminent, and when remedies of whatever nature may be most efficaciously administered. In ordering medicines, too little attention is paid to these natural variations, and the only general rule laid down is to avoid the meal hours: medicines are given three or four times a day, without having determined the duration of the effect of each dose; and purgatives and

others are ordered at night or in the morning indiscriminately; but since the conditions under which any particular state of disease occurs vary in their influence at particular periods of the day, it is very rational that the value of these conditions should be duly estimated. The efficiency of a remedy will as much depend on the right period being chosen for its administration, as on its own properties.

In discussing this subject, Dr. Smith holds two principles prominently in view, viz.: 1st, that sthenic manifestations occur chiefly in the day, and asthenic ones in the evening, night, and early morning, corresponding to the amount of vital action naturally proceeding at these periods; and, 2nd, that the remedies severally applicable to those conditions should be chiefly, or exclusively, applied at these periods.

In *states of debility*, there is the greatest exhaustion in the evening and early morning; consequently, in these states, nutriment should be given through the night, and no exertion should be made till breakfast has been obtained. And in the administration of stimulants and tonics, the morning and evening should be selected, and the doses should be more frequently repeated at these times than during the day. In like manner, in cases where there is mal-assimilation of food, it is important to apply all suitable remedies during the middle periods of the day, as this is the time when the vital powers should be well sustained; and if a due supply of nutriment be not obtained now, the lowering of the vital actions which occurs in the evening will prevent any compensatory effort being made. About three hours after each meal is the best time for such remedies; for then the beneficial effects of the meal will have passed away, and further aid will be welcome.

In fevers, and similar diseases, the natural order is disturbed; so that in the evening the pulsation, instead of falling, rises in a marked degree, and the skin, instead of increasing in activity, loses its power to act, and is hot and dry; but, as the morning advances, this excitement passes away: consequently, febrifuge medicines should be administered in the afternoon and evening, chiefly or exclusively, and food and alcohol should be given in the early and advanced hours of the morning, until midday. In acute inflammation, on the other hand, the danger is localized, but is associated rather with the elevation of the day than the night-rate of vital actions; and it is in the day that the greatest progress of the disease occurs. Hence, while the night periods might almost be left in the hands of nature, it is the day hours that call for active interference. In all cases in which venesection is of doubtful pro-

priety, it is doubly so in the evening, and least so in the middle of the day; "indeed," says Dr. Smith, "it could very rarely be justified in the late evening or in the night;" and the same general remarks apply, he says, to tartar emetic or any other powerfully depressing agent.

Dr. Smith concludes this section by showing that, for the reasons already assigned, apoplexy occurs after a meal, or in the later hours of the day; that hemorrhage is much more liable to occur during the day, and nervous affections in the evening and during the night; and that remedies for the states of exhaustion, as the delirium of inanition, or delirium tremens, should be applied chiefly in the evening, or during the night. He gives the following directions as to the periods for the administration of medicines, which should vary, he says, with the known mode of action of each medicine, and the hourly variations in the vital processes of the system:—

"In applying the foregoing knowledge to a consideration of the proper periods for the administration of the various classes of medicines, it may be objected that as the variations in the vital actions in health are not identical with those in disease, they cannot be accepted as a rule for the exhibition of remedies in disease; but in reply it may be affirmed that, with the exception of febrile conditions, there is no disease which materially disturbs the direction of the vital actions, however much it may intensify or lessen them, and hence that the cases are few in which the principles so often quoted may not be applied in the selection and administration of remedies.

"*Purgatives* should be always administered at night, for then there is the greatest accumulation of blood, and of carbonaceous or other effete alvine matter. They cannot be administered in the morning without tending to produce a depression of that amount of vital power which is then one of the prime wants of the system, and without having allowed the continuance of a state of system during the night which was very fitted to prevent that due subsidence of the vital functions which was necessary to repose.

"*Diuretics* should be administered with considerable frequency in the afternoon and evening, and not in the morning. The kidneys are sufficiently active after the breakfast (if plenty of fluid be then administered), whilst they become hourly less active in the afternoon, and are the least active in the night.

"*Sudorifics* are called for in the day-time, and directly after each meal, so long as any excess of food shall be found in the system. They are less indicated in the night; and in the early morning they would be injurious.

"*Stimulants*, when required at all, are especially needful in the early morning and in the evening, whilst during the day they may be much less advantageous. As a rule they should be avoided soon

after meals, except in those conditions in which they are presumed to be necessary as local stimulants in the process of digestion.

"*Sedatives*, when intended to influence the whole economy, are suited to control excess of action during the day, and may then be more freely administered than during the natural period of decline of the vital powers in the advanced evening. It is difficult to understand how they can be required in the evening and night, except with a view to relieve general nervous sensibility, since at that period the vital actions naturally subside to their lowest point without any aid. In nervous cases even it is very probable that a more frequent use of sedatives during the middle of the day would enable them to be dispensed with in the evening and during the night, when Nature should be left to regulate the amount of subsidence of the vital actions.

"*Narcotics*, having a mixed action, are rather suited to the class of cases where there is unusual depression of the vital powers, and then may be used temporarily at any time, but for a continued action they are more suitably administered in the late evening, since they primarily excite, and by repetition may be restricted to that action.

"*Chologogues* are more called for in the afternoon and night when the transformation of food is more urgently required."

The use of diluents and the cold-water system is the last subject discussed under the head of the daily cycle. There are two objects in the administration of fluids—1st, the solution of the food; and 2nd, the discharge of effete matters from the body. The importance of this latter is probably greater than is generally admitted. If an individual in health take at any time a greater quantity of food than is required for the wants of the system, he will retain to an injurious extent both partially digested material, and the result of unusual metamorphosis producing headache, weariness, and other symptoms of what is called a bilious attack. In this case, and indeed in any condition in which it is probable that it will occur, the free drinking of water, or perhaps other diluents, will have the effect of removing a much larger amount of urea than would otherwise be passed. It was found in a series of experiments, that the effect of drinking a considerable quantity of water in the morning was to increase the excretion of urine to an extent nearly double of the quantity of water taken, and along with it the amount of urea also. But for this purpose the fluid taken must be water, or else of a very low specific gravity; and it must be taken fasting, and food be abstained from for some time after. Where there is no excess of excrementitious matters, where the vital actions are low, and where there is debility, the indiscriminate use of large quantities of water, as

practised at spas and some cold-water establishments, only further lowers the tone of the system, and is injurious; but the corpulent, the *bon vivant*, and the gouty in the vigour of life, may undoubtedly be benefited by it.

Weekly Cycle.—We were scarcely prepared to find any variation in the vital processes in the weekly cycle; but when we reflect that working for six days and resting for an entire day is the more or less universal habit to which the system has been trained, and that the quantity and quality of the food often differs on Sunday from that used during the remainder of the week, we cannot be surprised that on investigation there should be found, with these recurring periods of repose and restoration, a higher degree of vital power than there existed at the termination of the previous period of continued labour. The phenomena occurring throughout the week are, of course, very liable to be influenced by disturbing causes; but, on the whole, it is sufficiently established by Dr. Smith's observations that the amount of carbonic acid evolved on Mondays is greater than on any other day of the week,—that the amount of urea is increased on Sundays,—that the weight of the body is lessened as the week advances, and that it is increased again on Sundays; and it further appears that the rate of pulsation increased during the week, and decreased on Monday, whilst that of respiration decreased through the week, and rose on Monday; but as it so happened that the temperature of the atmosphere followed that of the pulsation during these experiments, and fell from Saturday till Monday, it is difficult to say how much of the change in the rate of the pulse and respiration may be due to this cause. There are, however, abundant reasons for regarding a stated day of rest as of the utmost importance to the system, and for our urging clergymen and others who are occupied during Sunday to devote another day to rest, and, if possible, that day of the week which succeeds their busiest day.

Seasonal Cycle.—It is not a little remarkable that the effects of season on health and disease, as well on the vital processes generally, should have been so little the subject of modern scientific research, seeing that the effects of the changes of the seasons, both in the vegetable and animal kingdom, constantly force themselves on our notice. No recent inquiries had been made into their effects till Dr. Smith undertook their investigation. He made them the subject of extensive and long-continued observation, extending from the early part of 1858 to the same period in 1861. These researches embraced inquiries into the influence of season on the evolu-

tion of carbonic acid, the quantity of air inspired, the depth of inspiration, and the rate of pulsation and respiration, the elimination of urea, water, and other excretions, and the results of all are more or less fully detailed, along with parallel observations on temperature and atmospheric pressure, in the chapter before us, which closes with the following summary:—

"*Summer.*—The summer season exerts the most marked power, and under its influence the body exhibits the following minimum and maximum conditions.

"There is the *minimum* of carbonic acid and vapour exhaled, of air inspired, of the rate and force of respiration, of alimentation and assimilation, of animal heat generated, of muscular tone and endurance of fatigue, and, in general, of resistance to adverse influence.

"There is the *maximum* of the rate of pulsation, of the action of the skin, and the elimination of vapour, of the dispersion of heat, of the supply of heat from without, and of excess of heat, of the elimination of urea and urinary water, of the distribution of blood to the surface, of the imbibition of fluids, of relaxation of the tissues, and of poverty and carbonisation of the blood.

"*Winter.*—In the winter season the above conditions are, for the most part, reversed.

"*Autumn.*—Autumn is marked by the summer or the winter condition, as the character of the season resembles the one or the other; but it is essentially a period of change from the minimum towards the maximum of vital conditions.

"*Spring.*—In the early and middle parts of the spring season every function of the body is in its highest degree of efficiency, but as it advances these maximum conditions merge into those of summer.

"Hence the effect of season is more than the physical phenomena of temperature and atmospheric pressure explain, and is so universal that even the same amount of exertion made at two different seasons produced different degrees of effect upon the vital changes—less carbonic acid being evolved from it in summer than in winter in proportion to the relative amounts when at rest at those two periods."

The application of these results to health and disease is of much importance. Dr. Smith shows that the muscular force and power of endurance of the body vary with the season, and the least is found at the end of summer or beginning of autumn,—the causes of diminution being four, viz., the rapidity of the circulation, the difficulty of maintaining a fixed temperature, lessened chemical action, and relaxation of tissue. On the other hand, spring is the season of greatest muscular

power and endurance, and then the winter; but the sensibility of the system to temperature and tactile impressions is greatest in the spring and summer. The seasons at which children are born seems to have a decided influence on their viability, this being greatest in those born in the winter and spring months; and consequently the most suitable periods for marriage, Dr. Smith says, are the spring and summer months. It appears from an analysis of the registrar's returns, referring to 3050 deaths of children within one year of their birth, the months of May, June, July, and August, were those in which the greatest percentage of those born in them died during the first year of their age. Hence it appears that this lessened viability is rather associated with lessening powers of the human system at the period of birth, than with the period of conception, and therefore is less associated with the system of the parent than that of the offspring; and it may be inferred that in man, in common with so many animals, his offspring born in the cold season has a higher probability of life than when born in the hot season.

There are reasons to believe that the periods of maximum and minimum growth are spring and summer, on the one hand, and autumn and winter on the other. Being anxious to determine this interesting question, Dr. Smith made application to the governors of the Foundling Hospital for permission to determine the monthly rate of growth in height and weight, and the evolution of urea on one day monthly, in a large number of the children, but was refused; this being almost the only occasion, in the course of one of the most extended series of inquiries ever undertaken, in which an opportunity to add to useful knowledge was denied to him.

The seasons seem, to Dr. Smith, to exercise less influence on the amount and kind of food taken than is generally supposed; and the theory of nutrition based on animal temperature is not, he believes, sustained by facts. The amount of food consumed by men living in various parts of the world is not so different as we have been led to believe, and the kind of food is determined less by the requirements of the system than by the opportunity of obtaining it; so that the tolerable uniformity which exists in the various seasons in our own climate is supported by this tolerable uniformity existing in the various climates of the world. But as there is less vital action, and less transformation and accumulation, and greater excretion of urea, in the hot, than in the cold season, the dangers from excess of refuse food are greater in the summer than in winter. There is a tendency to the accumulation of effete, and partly transformed

material in the blood and alimentary canal in summer; and unless this is removed, it sets up the diarrhœa which is so prevalent at this time; therefore free dejections from the bowels are more necessary in summer than in winter.

The seasons exercise an important influence on the prevalence and character of diseases,—this latter being sthenic or asthenic, in a great measure, as the vital processes at the time are at their maximum or minimum; and the rotation of the seasons, with the accompanying changes in the vital processes, form an essential element in the *vis medicatrix naturæ*—the change of action naturally occurring in the system, as from maximum to minimum, having a tendency to check disease of sthenic character, and *vice versa*. Expectant treatment has this fact for its foundation, and on this whatever of success attends on homœopathy depends. These facts should always be borne in mind when prescribing; for the effects of remedies vary greatly as they coincide with, or are opposed to, the changes naturally occurring in the system.

Cycle of the ages of Man.—Having exhausted the daily, weekly, and seasonal cycles, Dr. Smith next discusses the cycle of the ages of man, in which he explains the peculiarities of the several stages from infancy to old age. It is admitted that the term cycle, applied to the ages of man, is not strictly correct; but it is contended that there is a progression of phenomena connected with every man, which may not improperly be called cyclical, whether in reference to himself, or to his position as an unit of a countless mass. The processes occurring in the body of man are divided into an ascending and descending scale,—there being no intermediate period of rest, the former includes the infancy, childhood, and adult life.

Infantile life is characterised by the maximum of rapidity of the vital functions, and the minimum of resistance to adverse influences. Pulsation and respiration are rapid. There is in the infant a maximum of the oxidation of the elements of nutrition and the maximum of highly-organised food supplied, the great oxidation being evidently dependent on the large amount of blood-corpuscles and of iron in the blood giving a great capacity for the carrying of oxygen in the circulation, and for the oxidation of food-elements.

The quantity of food taken by infants is, in proportion to the weight of the body, from three to six times greater than that taken by adults. Dr. Smith estimates the quantity of milk taken by a child at the breast, three months old, in the twenty-four hours, and retained and assimilated, at three pints; and he calculates that this would afford, supposing the

child to weigh 14 lbs., a daily consumption, of 136 grains of carbon, 19·1 grains of hydrogen, and 10·4 grains of nitrogen or each pound-weight of the child, which is three times greater in carbon, and six times greater in nitrogen than a well-fed adult consumes on an average for every pound-weight of his body. When duly considering the facts now given, and admitting the fitness and necessity of the kind of food which Nature has universally provided for the young, we shall perceive the ill-effect of supplanting a part of the natural milk by any farinaceous food. In bread, the proportion of nitrogen to carbon is 1 to 22, whilst in milk it is 1 to 11; so that substituting bread for milk reduces the quantity of the most essential element, nitrogen, and doubtless the necessary quantity of carbon; and, of course, the substitution of any of the forms of starch is still more injurious.

The free action of the skin in infants causes a rapid dispersion of heat; and as the effect of cold is to rapidly depress the vital actions, it is obvious that the temperature of the body should be sedulously maintained. Cold to the surface, also, by causing contraction of the blood-vessels, produces determinations of blood to the internal organs, and inflammations of the lungs, and head disease. These are the greatest dangers infants are exposed to from without; but from within, the greatest danger is from wrong feeding, by the substitution of defective foods for the natural food, or from the milk itself being defective in nutritive elements. There is less danger from excess of food, as the powers possessed by the child of passing any excess either by vomiting or by the bowels guard against this error. As a child advances in life the requirements of the system change; and it has been found by Mr. Simon, that the breast-milk alters its properties in accordance. He made an analysis of the milk from soon after the accouchement in August to the beginning of January, and showed that the quantity of caseine was at its minimum at first, and increased considerably, whilst the converse was true in reference to sugar.

Childhood to adult life.—The rate of all the functions subsides now; the quantity of food consumed is absolutely increased, as are all the products of excretion, though the quantity of both, relative to each pound-weight of the body, is diminished The protection against danger from without increases by the diminution of the action of the skin, and increase of exertion and intelligence, unless prevented by injudicious management; but the dangers from within are more numerous than at any other period of life, arising chiefly from dentition and defective nutrition. During the whole period while growth is pro-

ceeding, there should be an excess of nutriment supplied; and so great is this requirement, Dr. Smith says, that it is scarcely possible to find a condition occurring in youth which is fairly attributable to mere excess of proper food. The disorders of the bowels and the chylopoietic viscera, which are not uncommon, are due to errors in diet, by which improper food is supplied, and may remain in excess, and are not due to excess of simple and proper food. Dr. Smith lays great stress on this point, and strongly advises that no limit should be placed to the quantity of proper nutriment that a growing youth is disposed to take; but alcohols, he says, are not true foods, and are not necessary from childhood to adult life, except as remedial agents.

Adult Life.—Under this head, as under the others, we have a great variety of most interesting and valuable details, for which we must refer our readers to the book itself, contenting ourselves with sketching out the principal conclusions arrived at. It is at this period the vital actions approach nearest to an equilibrium—a state in which the waste of the system may be, and ordinarily is, exactly equipoised by the food supplied. The rate of pulsation and respiration progressively declines. The vital capacity of the lungs, or the quantity of air they are capable of containing, does not vary greatly during this period; but the quantity of carbon expired varies with weight, age, and labour, and the quantity of air inspired has a relation to the carbonic acid expired. The amount of labour which an adult can perform, Dr. Smith, adopting the calculations of Mr. Haughton, as set forth in his very elaborate paper in the number of this Journal for August, 1860, estimates as equal to lifting 250 to 400 tons through one foot daily.

The protection from dangers from without is now at its maximum; reason is brought to the aid of the body in protecting it from external evils, whilst at the same time the skin is also in a more perfect condition to resist those evils, and the body in its highest state of endurance. The dangers from within have reference to excess, and are due in a great part to the cessation of growth.

Old Age.—The period at which this commences is indefinite and various; there is no interval between the ascending and descending stages; and it is only when the downward tendency becomes predominant, and not when it is first established, that we perceive the change. The characteristic of this period is not simply an excess of waste over supply; for whilst in many old age may be represented by the wrinkled face and shrunken limbs, in others it finds the body yet plump, and with good

store of material; but it is essentially in the enfeeblement of each set of vital powers. The substance of the heart and muscles in general becomes fatty; the rate of respiration declines, but that of pulsation somewhat increases; the vital capacity of the lungs decreases, and the movements of the chest are restricted. The size of nearly all the organs of the body is lessened, as the lungs, kidneys, brain, and muscles; the vital tonicity of all the tissues is reduced, as is also the strength of the bones, by reason of a deficiency of animal tissue. The blood contains a larger proportion of water, less albumen, and fewer red corpuscles; the appetite is lessened, as is also the relish for food. Digestion is less actively performed and the bowels become torpid; the skin is less sensitive, and becomes loose and lax. The dangers from without are increased, and there is a diminution of the powers of resistance. This results from the chronic diminution of the heat-production within the body; hence shelter from inclement weather, an abundance of non-conducting clothing, and exposure to artificial heat, are prime necessaries of existence. The dangers from within are at a maximum, and are altogether such as result from failure of the vital powers.

THE CYCLE OF THE GENERATIONS OF MAN is the last subject discussed—under this head epidemics are referred to as evidence of rapidly-recurring periods of unusual liability to disease, and their history is traced and analysed; but the most interesting remarks are in reference to the changes in the social habits and in the type of disease in the nineteenth century. Social habits have indeed undergone marvellous changes, and that within the memory of multitudes now living—changes which must have exercised very marked effects on the constitution, and on the powers of the system to resist and overcome injurious influences.

The town population has vastly increased, and in a greater ratio than that of the country. The total population of Great Britain in 1801 was 10,578,956, while in 1851 it had increased to 20,959,477, or an increase of 98·1 per cent. The town population increased in nearly a double ratio; for in 212 principal towns there were only 3,046,371 inhabitants in 1801, while in 1851 they contained 8,410,021, an increase of 176·7 per cent. Fifty-one manufacturing towns increased in population on the whole from 722,388 to 2,341,791, or no less than 224·1 per cent.; and when considered alone, the increase amounted to 351·5 per cent. in the towns devoted to straw-plait working. Large towns have so much increased, that whilst there were only twenty-three with a population of 20,000,

eight with a population of 50,000, and one with 100,000, there were in 1851, 70 towns with 20,000; twenty-nine with 50,000, and eleven with 100,000 inhabitants. In 1801, 23 per cent. of the whole community lived in towns with upwards of 20,000 inhabitants; and in 1851, this had increased to 34 per cent.:—

"Since, therefore, the whole population both of the country and the towns has so greatly increased, it follows that the inhabitants are now brought nearer together and that a greater number live on any area. In London in 1801, the average distance between the inhabited houses was fifty-seven yards, and between person and person twenty-one yards, but in 1851 those numbers were reduced to thirty-eight and fourteen yards. There were also more than 20,000 square yards of country to every inhabitant in Great Britain in 1801, and 23 acres of land to every inhabited house; but in 1851 the density had increased to one person on 10,090 square yards and one inhabited house to every 11 acres. The distance throughout the country between house and house in 1801 was 364 yards, and between person and person 152 yards, but ten years ago these numbers were reduced to 252 and 108 respectively. In 1801 there were 5·4 acres of land to every person living, but in 1851 the space was reduced to 2·7 acres. Indeed, the increase of the towns has been so great, that at the latter period there was a number of persons living in the towns equal to that living in all the villages and isolated places throughout the country."

There is now much less exertion made in the open air. The effect on the vital functions, as shown by the elimination of carbonic acid, of riding on horseback at the trotting pace, is four times that of rest; but we now travel by railway, with an increase of the vital action of only one-half over that of rest. It required three hours to travel twenty miles on horseback, with this large expenditure per hour; but now people travel more than that distance in one hour, and make but little more exertion than if they sat on their hard stools at home. Let this be multiplied until it represents the actual travelling of the community, and we cannot fail to observe, that whilst travelling has marvellously increased in our day, the exertion of travelling has decreased in even a greater ratio.

Habits of intemperance, or of the general use of alcoholic liquors, have greatly lessened, and excess in nitrogenous food is also lessened. Later hours of retiring to rest and of rising are also adopted; the struggle of life is more arduous; the clothing of the body is less sufficient. The evils of large towns are increased, and so are the crowding together of large masses of people; and our drainage system, while it has removed some evils, has only transferred others, whereby the supplies of

water are very frequently contaminated. The actual temperature to which men are exposed has increased, not only from the production of heat, which must increase as a country increases in population, but from the actual temperature in which men pass their lives, resulting from the improved construction of houses, the abundance of fuel, and the aggregations of persons in towns. Another cause powerfully affecting the whole organisation, and lessening the vital powers, is the great prevalence of the syphilitic constitution. The use of tea and coffee, and of diluents, has increased, which is another circumstance materially affecting the constitution of the age. Tea and coffee have supplanted milk and beer, and in so far have lessened the quantity of nutriment used,—their action being therefore either good or bad, according as there is a sufficient supply of food from other sources. There is an exhilaration and lightness following their use, due to their power to increase the elimination of carbonic acid, and induce more complete transformation of food—circumstances all of them tending to produce a *change in the type of disease;* and Dr. Smith argues that they afford abundant evidence to prove that the conditions under which men live, and under which they therefore acquire disease, have greatly changed, and infers that the form and type of disease must necessarily have changed also.

We said, at the beginning of our review, that we regarded this as a most remarkable, valuable, and useful work; and we now appeal with confidence to the outline we have given of its contents, imperfect and meagre as it is, in confirmation of our judgment. The investigations were, it is true, pursued on a limited scale—indeed, it could scarcely be otherwise; but many of the results coincide so closely with those obtained by other methods, and by more extensive researches, that we have no hesitation in giving them all implicit confidence, and we most earnestly recommend the book to all our readers.

A System of Surgery, Theoretical and Practical, in Treatises by various Authors. Edited by T. Holmes, M. A., Cantab; Assistant-Surgeon to the Hospital for Sick Children. In Four Volumes. Vol. I. General Pathology. Vol. II. Local Injuries and Diseases of the Eye. London: Parker and Son. 1860–61. 8vo, pp. 825 and 895.

We have here two goodly volumes, forming the first half of a new system of surgery, published by Messrs. Parker and Son, and edited by Mr. T. Holmes. The object of the publication

is to unite in a complete system the opinions and experience of many men, most of them hospital surgeons in London, and most of them writing on subjects of their own choice, each subject being treated with something of the completeness of a monograph. The arrangement adopted is as follows:—1. The diseases which affect the whole system are first described. 2. The next part treats of injuries which either involve the whole or a large part of the body, or which may be met with in any region. These two parts comprise the whole of surgical pathology. 3. The various local injuries are next described; and in this part the anatomical order has been followed, the body having been divided into eight regions. By this plan it was thought that the injuries which affect the same part, and that in practice have to be diagnosed from each other, would be brought into the same part of the book, and under the treatment of the same author. 4. The principles of operative and minor surgery, and of the employment of anæsthetics, follow the essays on local injuries. 5. The next part comprises the surgical diseases of the various organs of the body, arranged according to the function of the part affected,—as diseases of the organs of special sense, of locomotion, &c., &c. 6. An appendix completes the work, comprising the principles of surgical diagnosis, of the surgical pathology and treatment of children's diseases, the construction and management of hospitals, &c., and miscellaneous subjects.

The names of the contributors afford a sufficient guarantee for the value and excellence of the several essays. The authors are all of them men of eminence, and men, moreover, who have for the most part acquired eminence by their previous writings on the very subjects they have treated of in these volumes. For example, we have Mr. Simon, surgeon to St. Thomas's Hospital, writing on inflammation; Holmes Coote, of St. Bartholomew's, on abscess, gangrene, and injuries of the face. Mr. Paget, also of St. Bartholomew's, contributes the articles on sinus and fistula, on ulcers, on tumours (innocent), contusions and wounds. Erysipelas, and the allied diseases, form the subject of an essay by Mr. Campbell de Morgan, of the Middlesex; and pyæmia is the subject of one by Mr. G. W. Callender, demonstrator of anatomy at St. Bartholomew's.

Mr. A. Poland, of Guy's, treats of tetanus, animal poisons, and injuries of the chest; while the article on delirium tremens is by Dr. Barclay, of St. George's; and those on scrofula, hysteria, and collapse, are by Mr. W. S. Savory, Professor of

Comparative Anatomy at the Royal College of Surgeons. Mr. Lee, of King's College and the Lock, takes up syphilis; Mr. C. H. Moore, of the Middlesex, cancer and wounds of vessels; and Mr. T. Holmes writes on burns and scalds, accidents from lightning, and the general pathology of dislocations. The general pathology of fracture is considered in an essay by Mr. S. R. Hornidge, late demonstrator of anatomy at St. George's and St. Mary's. The subject of gun-shot wounds is committed to the charge of T. Longmore, Deputy Inspector-General of Hospitals, and Professor of Military Surgery at Fort Pitt. Injuries of the head fall, as might be expected, to Mr Prescott Hewett, of St. George's Hospital. Injuries of the back are treated of by Mr. Shaw, of the Middlesex; those of the neck, by Mr. Gray, late Lecturer on Anatomy at St. George's; those of the abdomen, by Mr. Pollock, also of St. George's; those of the pelvis, by Mr. Burkett, of Guy's; of the upper extremity, by Mr. Flower, of the Middlesex, and of the lower, by Mr. Holthouse, of the Westminster; while those of the face and chest are, as we have already mentioned, by Mr. Coote and Mr. Poland. By a pardonable breach of the order as at first laid down, we have the second volume concluding with a very complete treatise on the diseases and injuries of the eye, from the able pen of Mr. Dixon, of the Ophthalmic Hospital, Moorfields.

It is thus seen that, instead of a single work, we have here a whole library of monographs, and, what is better still, at a price placing it within the reach of all, even the most humble student. To review such a book as this would require a whole staff of reviewers; for, to do it justice, each essay should be allotted to a reviewer who has made the subject his own peculiar study, and the reviews would in themselves be essays far exceeding our limits. We must, then, content ourselves with stating that we have examined the several contributions with very great care, and assuring our readers that they are well worthy of the credit and reputation of their respective authors. There is but one thing we have to find fault with—the want of more copious illustrations: we trust these will be more freely introduced into the sections on operative surgery. But, notwithstanding this want, we unhesitatingly state that no surgeon, whether senior or junior, will be doing himself justice, who neglects to procure a copy of the work.

On Food, and its Digestion; being an Introduction to Dietetics. By William Brinton, M. D., F. R. C. P., Physician to St. Thomas's Hospital. London: Longman and Co. 1861. pp. 485.

An interest of a very peculiar character has been felt by the profession to attach itself of late to the discussion in all its branches, of that very comprehensive subject dietetics, which can scarcely be accounted for by the nature of the subject. This interest has extended, moreover, to that branch of literature which, while aiming to impart amusement, endeavours not unfrequently to teach, both the scientific and general public. Accordingly, we have witnessed, from the pen of authors hitherto known only by their lay compositions, articles which have attracted much general attention, "On food, and what it is;" "Food, and how to take it;" Food, and what becomes of it;"—and so on. Reflected back again from the public, a certain section of medical physiologists and experimental thinkers have sought to attract the public ear. One gentleman has devoted himself to the sugar question; another, to nephalism; a third, not content with giving his best energies to the tea question in the day-time, has deprived himself of his natural rest to consume large quantities of the article at unconscionable hours A. M., while enlivened by the companionship of a spirometer. And books on indigestion have become absolutely a drug. A new edition of "The Stomach, and its Difficulties;" another of "Digestion, and its Derangements;" "The Victualling Department;" "A Voice from the Gastric Regions;" "On Imperfect Digestion;" and numerous other works of this class, evidence, that for some reason or other, the section of the public which thinks it thinks, is taking a great interest in its diet; and, referring its diseases not to the nervous system or the blood, but to the stomach, is putting a high estimate upon the treatment based, not so much on medicaments, as on a careful selection of alimentary principles.

This feature in the practical medicine of to-day is but one of those which spring from the influence that one mind of more than average calibre exerts upon a large class of people. It is not to be denied that somewhat of this dietetic mania has been brought about by the measure of success that has waited upon the homœopathic vagary; and that alien practitioners have, by their treatment of disease through a rigid control of the supplies, contributed to a less profuse prescribing by legitimate practitioners, and a more intelligent and abstemious feeding among the public. But the impetus thus given to this subject is, we are of opinion, far inferior to that of which Dr. Todd

was the instigator. His lucid views of morbid processes, his sound diagnostic powers, the facility with which he simplified the phenomena of obscure disease by the light of the modern method, his brilliant physiology, and his daring, stamped his treatment with an unwonted authority; and while enlisting in its support a crowd of youthful and zealous advocates, secured for his *System* the interest of the public. Nothing takes so much with the English as Popular Medicine from Eminent Hands; and there is so much piquancy in the view that a patient, who by the hourly consumption of an ounce of brandy, is simply and unmistakeably drunk, manifests merely an arrest of metamorphosis, that it ceases to be wonderful that such an idea should be universally discussed.

It is, then, at this stage of the question that we hail with the greatest satisfaction a work on diet from a man so thoroughly master of his subject as Dr. Brinton. Dr. Brinton is so free from prejudice, writes so clearly, has enjoyed and has availed himself of such ample opportunities for forming clear and elevated views, that his work cannot fail materially to still a discussion which threatens to become turbulent, and to temper with discretion a practice that might become rash. At the same time, the whole subject is embraced, of food, of drink, of digestion, and—not unimportant—of cooking. The book is compact and complete; the views are sound, and the language that of a scholar.

The prince and the peasant, the philosopher and the idiot, alike take to the same foods. The craving of man for the same alimentary principles is independent of chemical, physiological, or other knowledge. Indeed, in matters of diet, nature resents any attempts on the part of man to supplement or scientifically modify those instincts which from all ages have led mankind to eat flesh, fowl, the bread sprung from the sweat of his brow, the juice of the grape, and mother's milk. From the facts this instinct places before us, we find man consumes twelve elements, and may for a long time get on very well with six. But, should he venture to go beyond this, and live on four or so, nature warns him by pain, and then proceeds to kill him outright. It must have been but a poor consolation to Dr. Stark's relatives, after his twenty days on sugar and water, to reflect that he ought to have lived and was dying on scientific principles. But the apparent simplicity with which nature works is a simplicity merely of the surface, deceptive to imitators, and veiling obscure and subtle processes, of which the most complicated chemical formulæ are but inadequate and rough expressions. The whole body, it is true, is but a mass of minute particles; and to the chemist it may perhaps be suffi-

cient to find their mutual physical relations, discover the influence to a certain point of certain radiant forces upon them; their relations with all other atoms, and deduce function from this mutual dependency; but to the physiologist a *something more* is clearly indicated.

The adjustments of the machine may be perfect; but without this physiological something, this gift of nature the mother, and not the philosopher—a something beyond law and the creation of man—this divine breath, so wondrously diffused, the senseless mass cannot be an organism. This is the superadded principle which makes matter to live; which, while bestowing organic force, in addition to their own physical attributes, renders the whole subservient to its maintenance: endows each particle with its power of casting out and of taking in, and so to pour its own minute tribute into the great life-stream. To preserve such is the dignified office of food—an office not merely of supply, but of supply in a certain way. Carbon and nitrogen, for example, are two elements of paramount importance to nutrition; but although the ultimate destination of these is the blood, no nutritive purposes would be subserved by adding them as such to that fluid, in whatever quantity; and it may be doubted whether inductive reasoning could ever indicate the proper materials, and the proper quantities of them, indispensable to the maintenance of an organism in a healthy state. The problem of mutual dependence is too vast for all its integrals ever to be known. The great monitor, hunger, gives to the process of analysis, applied to nutrition, a series of facts; but neither in the consideration of those abstractedly, in the viewing the form, the mass, the reaction, do we discover the explanation of the circumstance, that in one case of physical relationship we witness from the play of merely physical forces certain phenomena; in another, by the play of the same forces, and with the manifestation of phenomena mostly physical and identical, we have a *vis* superadded, on which Life hinges,—endowing frail structures, naturally obedient to the might of chemical law, with a force not only superior to such chemical law, but maintaining it in subservience to its own and inscrutable purposes.

As difficult, therefore, is it to define a food as a poison. If food be everything contributing to the nutritive process, the nature of it becomes at once as extended as the process, and embraces methods as well as materials, appliances as well as aliments: whether engendering or merely favouring those conditions which retard waste or add to structure, or controlling those perversions of nutrition which modify both. And from this point of view a material which subserves the pur-

poses of tissue-making has no stronger claims to rank as a food, than the element which is destined to form a constituent of an excretion, though such excretion should itself be poisonous, provided that in contributing to the formation of the complex substance it parts with some *force* which ministers to *general* functional power.

It cannot indeed be said, that food is merely material, organic or inorganic, susceptible of transmutation into solid or fluid living substance. Such food would indeed add to structure, but it would not of itself bring about change; nor would it of necessity in its mutation evolve the force which we believe essential to the harmony of all the nutritional phenomena. Albumen, Fibrine, the Protein compounds, decompose, but need not be the highest functional foods. They add to structure, but we know they may be for a while dispensed with. The force to which we allude *may* be given out by the decomposition of these substances; but it is more probable that such is derived from the change of condition of such an element as Oxygen in entering into combination, and in being set free from combinations; although such change is beyond the reach of chemical recognition, paramount in importance as it may be in bringing about that series of changes which display themselves in complete function, and express themselves as Life. We have long held to the belief, startling at first sight as it may appear, that nutrition must be *absolutely constant* for life to be maintained; and at any one moment, *a Fact.* That is to say, that in the living organism, nutrition, relative as to parts, absolute as to its whole, cannot cease for the most inappreciable period of time without death. If life be the sum of the functions, these functions cannot be stayed and their exponent persist. But we would observe that to the term function we attach a higher signification than is to be found in the terms digestion, circulation, innervation, and so on. There is, we are inclined to believe, a function above all these—a function without a name, a controlling master function, which displays itself in that force which enables all the functions to *be.* A function imparting harmony to all the rest, universally diffused, and associated in some wondrous manner possibly, with latent and sensible heat. The stroke of lightning, the pure cyanides, certain poisons rich in nitrogen, all annihilate life at the instant. Now, no theory of absorption compatible with the limited velocity of the circulating fluids will explain this sudden *bouleversement.* But the force which controls special functions ceases in such cases suddenly to be. The general nutrition, or change, is stayed which evolves it. This universal nutrition or change, evolving force, may be imperfect, and

vitality be low. Special functions may be consequently dormant, and health no longer be perfect, but it cannot cease altogether and the organism retain its vitality.

We were forcibly impressed with the view of the importance of nutrition in this extended sense, by a case happening to a woman that came under our observation in hospital practice. She had suckled fourteen months. She had been compelled, during the whole of this time, to subsist on tea and a little bread. With a mixture of tonics, she received the advice to wean the child forthwith, and had scarce left the outpatients' room when she fell, and as suddenly died. All the functions had been discharged. The circulation was not unusual, though nutrition had been at its lowest ebb. *Post-mortem* examination afforded no evidence of organic lesion, and we can but conclude that nutrition was stayed for an indefinitely short period of time, during which life could no longer be.

If it were not for the force given out by the changes undergone by food in the body, the necessity for such changes would immediately cease to be apparent; and recognising the utility of every process of nature, the existence of such change is no small evidence of the importance of the force so called into operation. We can fix upon no single tissue or fluid which is not subject to perpetual change, to a waste and need of replacement, which, unless subservient to the production of some force, would be purposeless,—this waste, be it observed, being altogether independent of physical actions to which the organism is as subject as inorganic matter, but modified by the organic law of nutrition, altogether beyond our grasp. Thus, for example, fat is one of those substances as simple in elementary composition as any organic chemistry presents to us; and when once deposited, it might readily be supposed that there were no need for complicated changes occurring with respect to it. We see on reflection, however, that although one-fourth to one-fifth of the entire body is made up of hydro-carbons, a large weight of these substances is taken up in the food, which can only subserve the purpose of replacing metamorphosed fat. But why such metamorphosis should be required, considering that the office of such fat is mainly protective, we cannot see, unless it be that such metamorphosis originates a force of some kind. This material, be it remembered moreover, undergoing such perpetual replacement, centres very largely in the nervous system, whose integrity is possibly dependent to some extent on this continuous metamorphosis.

That some subtle force is at work, controlling the nutrition of the body, and that for the maintenance of it certain changes occur in the system independent of nutrition proper, changes,

requiring the mutations of the constituents of food, consumed for apparently no other purpose than waste, is noticeable very manifestly in the production of urea, and the quantity of this substance produced and excreted by the skin, the lungs, the fæces, and the urine. And glancing at the train of symptoms occurring in the system in which the metamorphosis of the protein compound is not complete, the admission is forced upon us, that the integrity of the organism is not maintained by the simple elimination of elements, but that previous to such elimination they must have been instrumental in the furtherance of some definite and healthful purpose in their successive changes to urea itself. It cannot be said that urea is a complex organic principle. Its chemical composition is of less complexity than the uric acid, the kreatine, the kreatinine, and numerous other organic principles excreted by the kidneys. There can consequently be little ground for supposing that the nitrogenous detrita could not be excreted in a less complicated form. The formation of animal urea in the laboratory is, moreover, very questionable, so that very peculiar influences are at work to produce it. An isomeric substance has, it is true, been produced by the action of alkalies on kreatine and alloxan; and it is familiar to chemists that urea, so-called, may be formed by evaporating to dryness the cyanate of ammonia; but the failure of all attempts to produce urea from the tissues, or from albuminous substances, shows it to be both the exponent and the product, of a series of organic changes of more than chemical character and purpose.

Shall we endeavour, being tempted by our subject, to wander from the task before us, and deduce a theory of vitiated being from deficient formative action, though excretion itself, as far as amount of element is concerned, is sufficient and entire? It would not be difficult, we believe, to show, both from analogy and analysis, that life, both sectional and general, cannot be where there is not action. Thus, to take a so-called diathetic state, a condition, let us suppose, induced by an atrophy of the cortical portion of the kidneys, where objective investigation points to a deficiency of urea in the urine, we observe in such condition a systematic debility—a debility, a want of power displaying itself in the nervous, the muscular, the digestive, the circulatory functions: conditions which sustain more and more aggravation, just in measure to the diminution of the S. G. of the urine. Modern pathothology accounts for these phenomena by a failure in elimination of urea. It terms urea a poison, and estimates the value of the ebbing life by the proportion of urea found in the blood. But a moment's reflection upsets this hypothesis. Urea is

always to be found in the blood, and it is a very large essential in the urine. It is scarcely to be credited that the balance of life should depend to such an extent upon the kidney pouring out so large a quantity; or that if a patient excrete 200, instead of 400 grains, some quantity of the difference should not readily display itself to analysis in the circulating fluids. The most accomplished chemists fail to recognize a fraction more of this large quantity in the blood than is usually present therein, and there appears to be as little reason in styling albumen a poison because it is sometimes excreted, as to stigmatize urea as a poison because sometimes it is not.

One salient fact stands out with a simplicity quite unmistakeable from the confused assemblage of results in the organic department of the human laboratory, and that is, the imperious necessity for the *manufacture* of urea in a healthy organism. The physical properties of this substance, moreover, are such as indicate a provision for the assisting this process by the instinctive consumption of two substances in universal request. Bischoff has shown that the amount of urea excreted is much increased by common salt, and that its power of permeating animal membranes is much favoured by water; one of whose most important offices, we may hence infer, is to assist in this osmosis, and thus indirectly to facilitate the production of this principle. The amount of Protein in the muscles of the body is estimated by Dr. Brinton at 50,400 grains, and 500 grains of urea, the weight of half the solid matters in the urine are excreted in twenty-four hours. By Vogel and Neubauer's computation, but 250 grains of this are derived from the waste of the tissues. That office, not simply nutritive, performed by food, cannot be inconsiderable, which effects the production and elimination in the course of a few weeks of such an amount of urea as equals the weight of the protein in the whole muscular system. For, be it observed, that urea subserves no apparent purpose; it is not a constituent of tissue; it is not a prominent constituent of blood; it subserves no calorifacient purpose. How unreasonable is it, therefore, to consider the process of its production simply eliminative, which requires a supply daily of protein amounting to several hundred grains! The process which, converting many of the organic salts with vegetable acids into carbonates, subserves no known purpose of adding to any tissue whatever, appears to us of a similar nature; for it is far more easy to credit such process with such a purpose, than to conceive, what the excreted products would lead us to premise, a building up and removal of histological formations in an almost instantaneous and fruitless manner.

We may suppose, from this point of view, that oxygen is charged with a similar mission in the economy; and indeed, but on some such supposition, it is not easy to understand the hunger of the lung for this element. The craving of the stomach is neither constant nor difficult to satisfy. The absence of sulphur, of phosphorus, and even of nitrogen and other elements from the food is, within limits, of little consequence; but the call for oxygen must be fully and ceaselessly satisfied, or the balance of nutrition is forthwith disturbed.

There are two channels through which oxygen is conveyed away from the system; and in both of these we find that this element is not required so much for absorption for constructive purposes, as for the mutating of substances to others, in some cases of more complex, in others of more simple constitution. Thus the complex albuminous bodies degrade into simple salts, of which they furnish the acids, and likewise into urea. The simple hydrocarbons pass into water and oxides of carbon; the hydurets of carbon into hydrates of the element.

It accords, therefore, with the views we have here endeavoured to put forward, with the principle the frequency of respiration suggests, and with the results at which chemistry arrives, to conclude that the substances most valuable as food admit of very ready decomposition, and tend in a very notable manner to unite with simple elements, of which oxygen, whose consumption daily is upwards of 14,000 grains, is by far the most important. Living on a few simple elements, none of which, with the exception of oxygen, are in the uncombined form, man gives out daily 17 cubic feet of carbonic acid, 6 lbs. of water, 480 grains of urea, 7 grains of uric acid, 10 grains of ammonia (Vogel), 150 grains of salts by the skin, 50 by the fæces; and, besides colouring matters, bile, mucus, and epithelium, 4½ drachms of chloride of sodium, 4 drachms of sulphates, 2 drachms of phosphate of soda, and 1 drachm of phosphate of lime and magnesia by the kidneys—egesta, which necessitate a supply of aliment to the amount, both of food and drink, of about 6 lbs. in the twenty-four hours.

With the exception of common salt and water, all the alimentary principles are derived from living bodies. Those subserving formative functions are distinguished by the possession of nitrogen. Those which are merely instrumental in perpetuating those conditions of temperature and physical being under which the above may be carried out, are signalised by its absence. Both groups contain carbon, and the latter have their hydrogen and oxygen either in proportions to form water, or the hydrogen or the oxygen respectively in excess. Liebig's doctrines may possibly, it is true, have received too

implicit an acceptance; but there can be no physiological objection to classifying these alimentary materials into plastic and calorifacient elements. The hydrocarbon and hydrates of carbon grouped in the latter are capable to some extent of substituting each other, but every proper food contains one or the other; and one or the other together with certain salts, water, and a protein compound, are indispensable to maintain life.

The only substances in nature that in themselves fulfil the combined purposes of these two classes of foods are milk, moist bread, and its congeners. On the extreme views of the vegetarian or the kreatophagian we have nothing here to say; but the advantage is decidedly in favour of the latter, inasmuch as the animal origin of milk cannot be denied. On either of these aliments life can be sustained. The human race lives on milk for the first year of its life; and whole armies live, even at the present day, on nothing but bread and water. The reason of their fitness is to be found in their composition. They both contain a nitrogenous principle—a so-called protein-compound, a hydrocarbon or fat, a hydrate of carbon, or sugar, and certain salts.

Of the azotised and non-azotised alimentary matters into which the chemist subdivides foods, those which are of the highest importance are albumen and oil. Found in every blastema and organised tissue, the necessity for their presence in the food of the young is readily apparent; and such theoretical necessity is fully corroborated on even a physical analysis of the milk which supports them. Left undisturbed, the fat rises to the surface to constitute cream, the liquid containing a large proportion of casein and albumen in forms so markedly differing in their power of precipitating by reagents as to indicate the presence of at least two varieties of casein. It is easy to prove that each globule of oil is contained in an investing membrane, by treating milk with acetic acid, when the pellicle becomes visible. If milk be agitated with ether, the fat does not dissolve, owing to this pellicle, which may be readily, however, made to disappear by the simple experiment of previously treating the milk with a little potash. It is scarcely necessary to remark, that this is the object had in view in churning, in preparing butter from cream. The sacculi in which the oily matter is contained are broken up mechanically, and the agglomeration of the fatty particles into masses is thereby facilitated. Of the two other characteristic ingredients of milk, the sugar, it is interesting to recall to mind, is of a kind that does not undergo the alcoholic fermentation, and consequently does not produce an evolution of carbonic acid in the young stomach; and the albumen is present only in the *colostrum*. It

is worth noting, further, that in addition to the phosphates and chlorides held in solution, the ash of milk contains 0·47 per cent. of oxide of iron.

Of the respiratory materials in which milk is so pre-eminently rich, butter is held by Dr. Brinton to be "not only the most natural but by far the best form in which hydrocarbons can be introduced into the healthy human organism." Its dietetic value is possibly in some measure dependent upon its proneness to oxidation, and the consequent generation of those numerous fatty acids whose formulæ the medical student so meritoriously endeavours to store up for recondite practical purposes. And were we desirous of bringing forward evidence of its value in nutrition, and its harmlessness as an article of diet, beyond what our daily experience affords us, we should find more than sufficient in the large amount of this substance habitually consumed by the peasants of the Tyrol, and as *ghee* by the Hindoos. The casein, which, in company with some butter, is precipitated from milk to take the name of cheese, is also of very high dietetic value; and though despised by the gourmet as a food, and censured by most people in this country as a

> "Selfish elf,
> Digesting all things but itself,"

contains an amount of proteinous constituents far exceeding that of other azotised food. More than 70 per cent. of its weight is frequently constituted by the casein, a quantity corresponding to more than 11 per cent. of nitrogen. The very notable variations in the digestibility of different cheeses depend very possibly on the amount of butter contained in them. Stilton and Neufchâtel cheeses, for example, are made from milk enriched by cream; others, as Gruyère, from a skimmed milk, and our own Cheshires and Gloucesters from the correct article.

Once the capacity for solid food is arrived at, mankind takes to consuming the grains of the cereals. In the consideration of a bread-stuff, we find ample room for wonder at the design that could so construct it, and the care that could so diffuse it—a theme, indeed, worthy of the poet, the statesman, and the philanthropist. For the cereals have a wide geographical range. Wheat succeeds best in the limits of the sub-tropical region, and is successively replaced by rye, barley, and oats as we proceed in a northerly direction; while maize bears the greatest range of temperature, and thrives well in the hottest latitudes.

The three cereal grains which form the staple of the food

of Europe are those of the triticum sativum, the avena sativa, and the secale cereale. Rice perhaps feeds the largest portion of the human family, millions dying when China and Hindustan are visited by a famine. Curiously enough the cereals generally are the fruits of man's own industry, in which the chief share should in justice be given to the Caucasian races, who transplanted rice to the Mediterranean coasts, and brought the maize from America; and unless the Œgops ovata be really the wild condition of the plant, civilized man would have had to find a substitute for his highly cultivated wheat. Indeed, the grain of the triticum has been staple in this country for three hundred years only. All the cereals, it is worthy of notice, are hardy; they can vary in their inorganic salts without detriment; are of rapid growth, and very highly nutritious.

Whatever be the bread-stuffs from which the staff of life is made, we find that the proteinous constituents form a large portion of their weight, and that the grain, when ground, may be sifted into two portions, flour and bran. Tougher, and not so susceptible of minute subdivision as the inner portion of the grain, these outer layers have fallen so much within the last few years into disrepute, that the English labourer thinks himself as hardly used without white bread as without vote by ballot. He has no objection to go unwashed and to live in a stye, unventilated and undrained; but would resent, as the grossest tyranny, any attempts to feed him on brown bread. Nevertheless, chemistry shows that the proteinous elements of bran exceed those of the husk-contents by more than 2 per cent. The proportion of water is the same in the wheatmeal and in the bran of the wheat; but the starch, dextrine, and sugar, are in the proportion of 80 to 50. The oily matter, the gluten, and the fibre are, on the other hand, in excess in the bran, as likewise are the salts.

The bread made with the husk is, consequently, more nutritious; and it is no compensation that the starchy and saccharine elements slightly preponderate in the more refined article. It is the opinion of our best physiologists, among whom Dr. Carpenter may be signalled, that this deficiency in the white flour is not without serious mischief to our rural population, and that the present frequency of "diathetic" diseases is to be in no small measure ascribed to an over-starchy and insufficiently proteinous food. On this matter, one it must be confessed of no little importance, Dr. Brinton speaks out warmly, and avers that English bread is far behind that of most other European countries. He even goes so far as to augur serious evils accruing from this reprehensible selection

of the white flour as a bread-stuff; and though this physiologist may be somewhat enthusiastic in favour of bread made with the simple unsifted grain, there can be little doubt but that a more nutritious and a less costly bread can be made from the simple wheatmeal, even admixed with a portion of rye. The objection to bran is possibly that it does not leaven; but even the much despised "seconds" are superior for dietetic and economic purposes to the naked grain, and in fact have both an improper and arbitrary cheapness, standing as this material does between fine flour and bran, the most esteemed of which is the least valuable.

The proportion of gluten contained in thin-skinned wheats is considerably higher than in the softer varieties of grain; and the wheat grown in the southern parts of Europe, and in the North of Africa, is richer in this respect than English wheat. This is not readily to be explained. For, on comparing other cereal grains, we find the amount of azotised material in oats cultivated in Scotland and the high-lying land in the West Riding of Yorkshire and adjacent parts of Lancashire (climates colder than Kent and Sussex), much exceeds that of the wheat grown in the south of England. The composition of the two is proof positive of this. Thus, first-class wheaten flour contains 14·6 per cent. of azotised principles, while the ground groats or oatmeal contains 19·91 per cent. of these principles, and are consequently far more nutritious than the same weight of wheat flour. On the other hand, we see that, with reference to the oily and saccharine constituents, the proportion of these is larger, the colder the climate. The saccharine elements of wheat flour amount to 66·9 per cent., those of rye to 78 per cent., and between wheat and rye come the oats with 68·68 per cent. The oily constituents follow the same law with respect to wheat and rye, the proportion of these in the former being 1·2, that in the latter 3·5. But we find a discrepancy between the rye and the oats, which latter have an excess, their amount being 7·33. The Indian maize, the staple of North America, displays a very large amount of oily constituents, as much even as 9 per cent. Save in saccharine, rice has but small nutritive value, a fact which the instinct of the inmates of a London workhouse soon demonstrated to the authorities, within our own knowledge. The paupers beseeched at one time to be allowed rice and treacle instead of gruel. Their request was complied with; and at the end of the week, as they could not get the gruel restored, they broke all the windows. Maize, again, is highly nutritious, and inspires a sort of passion for it in those who make it their subsistence. It is in Lombardy believed by the pea-

santry to be more healthful and nourishing than any other grain, and is accordingly the most cultivated of all the corn crops. It recommends itself very especially by its ready convertibility into wholesome food without the aid of the baker. All that is requisite is a kettle, and by means of a little fuel it is transformed into polenta, a kind of thick pudding, which, without any addition, forms the favourite food. The peasantry have not done with the plant, however, when they have eaten the grain, nor in fact do they wait for it to ripen, but eat the green grains as peas; the leaves they give to their cattle as fodder, or, when dried, make their mattrasses of them; the stalks are used for fuel, and with the feathery tops they make brooms to sweep the house.

"We may fairly," says Dr. Brinton, "estimate a pound of good bread, with two pounds of a tolerably pure spring water, as equivalent for the nutritive purposes of a healthy adult to about two or three pints of milk." And it is nearly a perfect food. The gluten is sufficient as a plastic. The starch and sugar are in sufficient proportion to perform that share of the calorifacient process, that would in a typical food devolve upon them. But the oily elements are scarcely sufficient to meet the requirements of the system. It is therefore essentially a plastic nutritive; and, though the azotised portions would in oxidation give out heat, yet to employ them for such a purpose would be far from economical. Thus, with respect to such a mode of procuring temperature, veal has the respiratory materials of food in the proportion of 1 to plastic materials 10. The respiratory materials of wheat-flour are to the plastic as 46 to 10, and the former materials of milk are to the latter as 40 to 10. Consequently, to get from veal as much respiratory food as can be derived from the same amount of bread or milk, the consumer must waste it to the extent indicated by the disproportion of these numbers. On the other hand, the respiratory materials of the potato are to the plastic as even 115 to 10; and we may consequently calculate that, to replace the waste of his tissues by this vegetable alone, a man should consume about 13 pounds daily. This is one dietetic fault of the potato. Another, and one of the highest importance, is its notable deficiency in sulphates, chlorides, and phosphates, of which latter, potatoes contain less than one-tenth of the quantity to be found in the same weight of wheat.

Considerations of this character impress themselves with a far higher earnestness on the minds of educated people at the present day than could have been hoped for at a time when, the chemistry of nutrition being yet as it were unborn, generations of the poorer classes, by subsisting on this vegetable, laid

the seeds of a moral and physical degradation, which attained its most terrible intensity in that Irish famine, from the effects of which the country is but just now recovering. We have referred to the faulty instinct of the English poor, as displayed in the present fondness for white bread; and a still more grievous example of the ill effects of dependence on uneducated instinct is seen in the partiality of the Irish for the potato. Singularly enough, this liking is not universally shared. The peasantry we have mentioned as devoted in Lombardy to the polenta, have the strongest dislike to this tuber—a dislike that is not to be overcome by any authoritative enactments, superadded as they have been to the sufferings endured by these people in the terrible famines of 1818 and 1846.

The full value of an accurate knowledge of the purposes subserved by the hydro-carbons and the hydrates of carbon in the system, can scarcely be over-estimated, if we consider its bearings on the prophylaxis of tropical disease. But we consider that the physiological chemistry of these substances is scarcely in so simplified, and consequently perfected a state as is that pertaining to the azotised aliments. Certain broad facts may, however, confidently be relied upon—such as the generation of animal heat by combustion of the carbon of sugar and amylaceous substances; and the oxidation with, doubtless, the same results, and perhaps very probably with the formation of the former substances from fats and hydrocarbon generally. The amount of carbonic acid exhaled varies so obviously with the nature of the food, that with respect to unazotised materials there can be little question of their main purpose. The clue to the heat-giving process is to be found in the observation, that the oxidation of carbon to carbonic acid gives rise to a volume of gas equal to that of the oxygen absorbed. The oxidation of hydrogen is not followed by any such evolution. By noting, therefore, the amounts of oxygen taken in, and of carbonic acid evolved, we can tell approximatively which of the two sets of compounds is most metamorphosed. Thus the experiments of Regnault and Reiset show that, butter being the food, 21 volumes only of carbonic acid are produced with an absorption of 31 volumes of oxygen; and with a strictly amylaceous food, the quantity of carbonic acid evolved rose to 93 per cent. In the former case, therefore, it is evident that carbon accumulates in the system—in the latter, that its combustion is perfect, or nearly so. An interesting fact in the natural history of marmots should not be overlooked in such investigations, leading as it does to similar conclusions. During its torpid state, the marmot requires not more than one-thirtieth of the oxygen its

active condition demands. Of this thirtieth, one-half bulk is given off as CO_2; the other can consequently only go to unite with the hydrogen of fat. This is found to be the fact; for at intervals the animal evacuates the water from the bladder, and gets thin at the end of the season.

But against these truths we have a large amount of imperfect knowledge to oppose. What, for example, are the metamorphoses through which the grape sugar (into which the hydrates of carbon are converted) has to pass, previous to furnishing as a fuel the combustion-products, water and carbonic acid? And in what way are these metamorphoses to be harmonized with the apparently antagonistic chemical dynamics of fat? The data furnished by Liebig from the results of his researches into the fattening of animals, lead to the inference, in opposition to views merely chemical, that hydrates undergo deoxidation and conversion into fat. Thus, for example, we find that by loss of carbonic acid, water, and oxygen, fruit sugar is converted into fat.

Fruit Sugar. Stearin.

$$10\,\overbrace{\{C_{12}\,12(HO)\}} - (6CO_2 + 10HO + 8O) = \overbrace{6_{114}\,H_{110}\,O_{12}}.$$

Again, in the production of butyric acid by the fermentation under caseine influence, of a solution of sugar, we have another instance of the formation of a body belonging to the fatty series; and during the time for gathering the crop in Jamaica, and when the work is very severe, the slaves eat the sugar liberally, and every negro on the plantation, and even the dogs, grow fat. But the most striking illustration of such saccharine conversion is afforded by the experiments of Gundelach on the feeding of bees. When fed on pure sugar only, the bees supplied wax in abundance—the consumption of 20 lbs. of sugar resulting in the secretion of 1 lb. of wax. In apparent antagonism to this fact are, the absorption of oxygen in respiration in excess of the quantity required to form the exhaled carbonic acid, the greater portion of which excess must enter into combination with hydrogen of fats, a small portion only going to oxidize sulphur and phosphorus: and the result at which Bernard and Harley have arrived—the undoubted generation from hydrocarbon of sugar, or some near kindred substance, by the liver.

The preference of hydrogen over carbon for the oxygen taken in by the lungs, we believe to be strongly indicated by these observations, and to be very pointedly aimed at in the dietetic history of alcohol, on which we shall further on have to make a few observations. The consumption of this material

in hot climates is not nearly so limited as is generally supposed; nor do we believe that it is owing to the animal diet, or in obedience to the dictates of intemperance, that the craving for brandy pawnee urges itself so irresistibly upon the European. We should bear in mind, that respiration in hot latitudes is of diminished frequency; and that equal bulks of atmospheric air have widely different weights of oxygen in them according to the temperature. The colder the air, the more the oxygen. There must consequently be either some call for alcohol beyond the demand for heat, or its elimination is not necessarily dependent on decomposition. Such carbon, however, as is separated by the union of the hydrogen with oxygen, is carried off in the bile, and fulfils no purpose of heat-making.

That food-chemistry has placed at the disposal of practical medicine means and remedial agencies of the highest value, cannot, specifying no further than rheumatism and diabetes, be denied for one moment. And there is no reason for thinking, but that in a few years these advantages will be still more manifest. But when we proceed to extend our inquiries to the nature and properties of the liquid foods, we find our knowledge at best but unsatisfactory and vague. Thus, for example, notwithstanding the large consumption of tea and the dietetic influence of its infusion, we at present are almost ignorant of its chemical constitution and physiological action. That this latter is very decided, we in common with our readers have had ample experience; but on what this action depends, on what constituent of tea, and on what *primarily* exerted influences, we must leave to future investigators to determine, who shall be less at variance than Bœcker, Brinton, and Edward Smith. Liebig believes that the theine serves to form bile, an opinion which will not be shared by those who consider bile to be altogether an excretion; and looking at it from a social point of view, we find the German holds it to be stimulant and anti-narcotic, the Frenchman an appetizer, and the English washerwoman, a food. The latter is, perhaps, most right of the three; for, seeing that, according to Mülder, a thousand parts contain—

Volatile, ethereal, or aromatic oil, . . .	8 parts.
Theine, ...	58 „
Tannic acid, ...	158 „
Extractive, ...	208 „
Dextrin, ...	98 „
Albumen, ...	27 „

— we may believe that there is a good deal of nourishment

in an infusion of tea—*not* the scalding water of the moderns—perhaps not much less than is contained in a pint of weak soup, that is, about one per cent. of albuminous and saccharine compounds. Further, we know that the German physiologists hold it to arrest metamorphosis, and to diminish the excretion of carbonic acid and urea, and the English physiologists we have named affirm it does nothing of the sort.

We turn with interest to the observations of Dr. Brinton on the nutritional effects of alcohol—an interest owing, we confess, in no small measure, to the fact that the eminent physiologist, whose free medicinal use of this agent has originated so much discussion, may be supposed to have implanted as a teacher many of his views into the author's mind. And if Dr. Brinton achieves but the one object of lending dignity to a discussion which has been debated with more than scientific zeal, and which has bid fair to divide the profession into parties as fierce as the Colonnas and Orsinis, he will have done much to redeem medicine from a scandal which impartial men must regret, and for which we should be loath to record adequate expression. For it is not to be denied that the limits of a scientific discussion have fairly been attained, when a chief member of the profession discovers that alcohol tortured from the cereals is in no sense a creature of God(!); and, parodying the reprehensible precedent which censured the administration of chloroform in labour, finds wines to be unfermented grape syrups in one place, fermented liquors in another, and in a third that wine and strong drink mean nothing more than grape syrup and palm honey.

Deeply interested as we are in the moral aspects of this question, and with the toxicological features an excess in alcoholic fluids presents, we are especially concerned with that branch of the subject which considers alcohol from a dietetic point of view, and endeavours to define for therapeutic purposes the nutritional value of such substances. Characterising a large group of liquids, which form a considerable portion of the ingesta of the whole world, it would it first sight seem not improbable that such substances possessed some qualities of a higher character than those which recommend them to the sensualist and the *bon vivant*—that they have either a directly economic bearing on the nutritive process in retarding waste; or that they are direct pabula of nutrition and the tissues; or that they subserve obscure purposes of function, on which nutrition itself is dependent. The researches of Dr. Prout long since led to the belief that no inconsiderable share in the demand for alcohols partakes of the first character. Previous to the recent researches of Dr. Edward Smith, the observation that alcohol

retarded the evolution of carbonic acid was made by that physician. Indeed, it has come to be received almost as a physiological postulate by the school advocating stimulation, that as lessening very markedly the elimination of carbonic acid and urea, alcohol retards waste, and aids nutrition by diminishing both the metamorphosis of tissues and the products of such. This generalization has indeed been stretched so far as to lead to the endeavour even to contrast the red and white wines by the supposed increase of waste accompanying the consumption of the latter.

But a careful distinction should be drawn between the effects of spirit as such, and the aromata with which the alcohol is charged when exhibited as wine and ale. Those aromata of wines, and the saccharine and nitrogenous elements of ales, have an action quite distinct from, and indeed often antagonistic to, alcohol itself; and such observations are clinically important, inasmuch as the exhibition of old wines is found to reduce nervous action; while the newer wines, with but little aroma, and a proportionately larger percentage of spirit, have a more strictly supporting influence. Where we are desirous, consequently, of stimulating the heart's action, without increasing the action of the skin, it is perhaps better to administer spirits of wine than wine or brandy.

We shall, on examining the researches of the best observers on the influence of alcohol, have reason to conclude that some well-founded objections may be taken to the premises on which the alcoholic-food theory has been based. With Dr. Brinton we are inclined to agree, that this limited metamorphosis is not economy, and with him dissent to the therapeutic deductions that have been supposed to follow legitimately from the contrary assumption. It is not shown that in all cases the products of vital function are in deficiency during the consumption of alcohol; nor is it proved that, in the event even of a deficiency quite unmistakeable, such would be synonymous with saving. With Dr. Brinton, we feel that it is but to consider life and its mysteries from a narrow point of view to hold, that the bringing about a moderation of waste is to effect the prolongation of life; and, in the second place, seeing that the diminution of carbonic acid is not constant through the class of alcohols, we, with Dr. Edward Smith, are of opinion that no retardation of the metamorphosis presupposed can be universally assumed to modify the vital changes of which this product is the exponent. Lallemand has also expressed a dissent to such a view, and denied the transformation of the spirit to its simpler forms.

We do not, however, demur altogether to the facts which are independent of hypothetical views. But we hesitate to

adopt the sweeping conclusions that have found adoption among so large a class of the medical public, inasmuch as the facts on which these are supposed to be based are not uniform as a whole—as the preamble of a great practical law.

Thus, then, supposing even that the diminution of carbonic acid could be held to indicate relative cessation of waste, it will not follow that the administration of alcohol for the effecting such an object is at all likely to be attended by such a result. In so far as brandy is concerned, the diminution in carbonic acid has, it is true, been uniformly observed; but this does not hold for all stimulants of the same chemical basis. Rum, it is found, brings about a very decided increase in the quantity of carbonic acid, and similarly do ale and stout, while whiskey is at times followed by a decrease, and at other times by an increase. Dr. Todd's treatment mostly combined ether with brandy, and so far his practice was in harmony with the indications of recent experiments, which point to that substance as causing a diminution in the quantity evolved. The moderate diminution of carbonic acid by these agents proves little, however, as to the waste of the tissues. The formation of water, for example, may fairly be held to indicate a combustion which, from a point of view having relation to temperature, permits the widest variation in the formation of the carbonic acid.

A more legitimate opposition may be entertained to the views now prevalent on alcohol than that we have here alluded to. Based upon the theory that, like other hydrocarbons, alcohol undergoes actual transformation in the system, the belief necessarily followed that it upholds the calorifying process, increases nerve-nutrition, and augments the generation of nerve-power; that it saves the tissues from oxidation, and produces heat. Both the theory and the belief are groundless, if such transformation does not take place; and if alcohol is really eliminated, not as carbonic acid and water, but as alcohol, and alcohol only. Had it been possible to satisfy that eminent physician on this point, we believe Dr. Todd would have been the last to advocate the exhibition of this remedy on such a view of its nature; for he held, that as a hydrocarbon it was far more readily decomposed than its congeners. Recent researches lead to the inference, that the removal of alcohol from the system takes place without change. The experiments of Dunoy, Perrin, and others, carried on in Paris during the past year, establish that the kidneys, skin, and lungs throw out alcohol, as such. The duration of this elimination, subject to variation from obvious causes, may be said, in the case of an ordinary dose, to extend over twenty-four

hours, the tissues of the liver and brain being the special seats of its accumulation. Nor can it be said that it is proved that alcohols improve the nutrition, more especially of the nerve-cell and nerve-fibre, as was taught by the late eminent authority. Apart from theoretical views upon this subject, we are accustomed to consider the integrity of the nervous system most especially to depend upon a healthy wear and tear, which precludes the supposition of advantage from a cessation of interchange of its elements. The nervous system of idiots is subject to atrophy, though there is evident economy of nerve-disintegration; and if, as Dr. Todd alleged, alcohols have no influence in causing a congestive state of tissue, it is difficult to account for its marked influence in cases where post-mortem examination reveals an anæmic condition of the brain-pulp. The administration of alcohol has the effect, doubtless, of inducing an exaltation of nerve-force, but not by assimilation and decomposition; for it is not assimilated or decomposed, but by its specific properties as a chemical, acting upon the fat and nerve of the nerve-fibres and pulp—an action opposed to normal nutrition.

If we advert now for one moment to its known influence on the excretion of nitrogenised principles, we see at once that if urea be taken as to some extent an exponent of the activity and integrity of the obscure vital forces, the sum total of which is health, that alcohol can in no wise further these processes; but, whatever its local action on nerve-centres may be, can but be inimical to their play. The observations on this subject are uniform, and all point to the marked deficiency of urea in the excretions of those taking alcohol. Does this arise in the affinity of alcohol for water, and the diminution in the urea given off find an explanation in diminished solubility: or is it more especially that the muscular power being lessened the products of the muscular function accumulate in smaller quantity? In disease, this latter cause can scarcely be in operation, for the muscular system is the first to waste. It must then be either that the urea, though formed, is not eliminated, or that the oxidation of albuminous and alimentary substances does not proceed to this ultimate product. That this is very probable, we believe, will be conceded by the reflection, that the crisis of fevers, and other acute diseases, are very frequently accompanied by copious discharges of urates, which clearly indicate the faulty chemical cycle.

The purposes, therefore, subserved by alcohol are at present, we conceive, ungrasped by chemical or physiological theory. For we have had to show, that as far as the diminished evolution of carbonic acid is concerned, such does not take place as a con-

stant; that if it does, it cannot be held (seeing that water is formed during such diminution in quantities hitherto undetermined) to indicate an economy of tissue-life through an induced retardation of metamorphosis. Next, that it cannot act as a nutrient in the usual acceptation of the term, inasmuch as it is not assimilated and decomposed, but is excreted in its integral form; and, lastly, that no conservative attributes can be assigned to alcohol from the deficiency of urea thrown out by the emunctories; for the phenomena of health are invariably accompanied by such elimination, and most probably depend upon some force connected even with the generation of this principle; while it is contrary to all observation, and to the views of the advocates themselves of the modern alcoholic theory, to suppose that anything but positive harm can accrue by the non-elimination of urea already formed.

Yet though, with Dr. Brinton and Dr. Edward Smith, we feel inclined, from the force of those arguments to which we have been led by an independent view of this subject, to concede "that alcohol is, in the main, a source of nutritional derangement, and that its use is incompatible with the perfection of nutrition," we are not so wedded to reasonings on medicine as to ignore certain facts, of which we ourselves have been spectators, and of certain other facts, of which others have been the actors, though such facts may be inexplicable by the reasonings the supporters of the modern view have laboured to propound. We have ourselves in various diseases seen a mitigation of all kinds of symptoms upon the free administration of brandy and ether, and have ourselves assiduously exhibited these "stimulants," with results that we are confident could not have been hoped for with any other remedies. We have seen the respiration of pneumonia fall in twenty-four hours from 70 to 50. We have found the coma to lessen and cease altogether in typhoid, the pulse to lower in all classes of fever, the dyspnœa to vanish in œdema of the glottis, and the prostration to disappear in erysipelas. And to these observations made upon the body in disease in this country, we are justified, we hope, in appending those of a highly-distinguished and observant officer, made under altogether different circumstances:—

"My own opinion of brandy is, that its properties are as eminently nutritious as stimulant; and it is a common expression among my own men, especially on a march, and in the very hottest weather, that brandy 'is a second life to a man.' I have no doubt you think that brandy gives a kind of Dutch courage, and, when taken in a large quantity on an empty stomach, serves merely to excite him; but my own experience shows me that the men are all the bolder, the cooler, and the

stronger, when they go into action with an extra 'tot' served all round. At Lucknow, after the capture, and when the heat was fearful, and in my company the men were all over boils from the stench of the dead niggers, and were so prostrate, that when I ordered them to present arms, their knees knocked together, and they could only lift their guns half-way, they would crave for rum and brandy, and, having been all day without food, would declare they would rather have a nip of grog than the best dinner you could give them. In the Crimea we could drink any amount, but it was nothing to what we could drink in India, although I believe it is thought by yourselves [medical men] that the call for spirit is greater in cold climates. In the Crimea we could eat large quantities of fat, which in India was disgusting. When in the Crimea, I would drink off a tin-pot-full in a quarter of an hour without the least intoxication. You would think that was pretty fair, but in India I have drunk an entire bottle of brandy without the least effect. Natives can take an awful amount of liquor; and they hold brandy in such esteem, that some of the tribes, natives of no caste, employed as mehters or sweepers, are sworn in the Court of Requests on a bottle of brandy. The *brandy shrab* is, in fact, their God. You will see a thin, wretched, miserable devil, drink off pint after pint of it, one after the other. They eat scarcely any animal food, their diet being *chupatis*, made of a coarse kind of flour, and boiled rice with a sauce made out of *dal*, a kind of pea, and a spirit made from rice—a more wholesome liquor, perhaps, than regular rum. Whatever disease the natives have, they apply for brandy shrab; and even in gonorrhœa, they *wrap it up in wool soaked in brandy*. Of the three classes, temperate, intemperate, and abstaining altogether, it is well known that when the subjects of acute disease, the temperate live longest, but the intemperate have a better chance than those who never touch brandy or spirit at all. I am quite certain you require more grog in hot than in cold climates; and brandy, I assure you, is indispensable in India, where you cannot eat, but you feel so exhausted and prostrate. There is not the least chance of the spirit doing you harm, if you can contrive to eat something, and sleep well. The nourishing qualities of the spirit are, perhaps, most evident on a forced march; and when you are taking active exercise, the noxious elements seem to work off. If you want my experience of mess, and do not want to get drunk, hold your breath when you lap it in, take a mouthful of bread between each glass, and *never sit with your back to the fire*."

PART III.

MEDICAL MISCELLANY.

Three Cases of Acephalocyst Sacs. By Dr. Heinrich Wallmann.

Acephalocyst[a] sacs, that is, barren echinococcus cysts, frequently occur, especially in the substance of the liver, and attain to a great size, whereby the surrounding tissue, in consequence of the constant pressure, is atrophied to a great extent. The growth of echinococcus cysts in the lungs, in the muscles, and similar tissues, is, however, very rare; and I will therefore in the following lines communicate three remarkable cases of acephalocyst growths, well suited to attract practical attention.

Case I.—Count N., staff officer of Marines, thirty-nine years old, an Italian, had exceeded inordinately in venery and wine, was frequently under treatment for venereal diseases, and suffered latterly from stricture of the urethra. In his thirty-eighth year he became insane, and was received into a private asylum. At his reception into this institution a tumour was remarked in the right mammary region, in which, according to the fixed idea of the lunatic, all his semen had secreted itself. Experienced surgeons, who examined him, thought the tumour a lipoma, of which it had all the appearances. After a year's residence in the asylum, he died

[a] [*Acephalocysts* are defined by Kuchenmeister as "six-hooked cestoid embryos, the growth of which has proceeded without hindrance; but which, nevertheless, have remained barren, or, more correctly, which have never attained to proliferation and the production of scolices." Formerly described as *hydatids*, they were long regarded as being produced by the so-called equivocal generation: recent researches, however, especially those of Kuchenmeister, have shown that they are stages in the growth of tape-worms, more particularly of the—1. Tænia Echinococcus scoliciparіens; 2. Tænia Echin. altriciparіens; and, 3. Tænia excysticerco tenuicolli. Eggs containing small cysts or embryos, each furnished with a crown or collar of little hooks, are set free by the mature tæniæ; and, when the egg-shells break, the embryos, by means of their hooks, bore their way into the neighbouring tissues (it may be into a blood-vessel, when they are carried by the current to a distance), and becoming fixed in their new localities, are enclosed by the tissues in a cyst, in which they increase in size, and multiply by a species of endogenous proliferation or internal growth of new hooked broods, each of which is capable, under favourable circumstances, of being developed into a perfect tape-worm; or, remaining barren, are called acephalocysts.—Ed.]

rather suddenly; a considerable improvement in his insanity having shown itself during the last week before his death. The tumour had not changed essentially either in size or appearance during his residence in the asylum; unfortunately, the precise period when the patient had first recognised the commencement of its growth could not be ascertained. The dissection, made in March, 1861, gave the following results:—

The body large, wasted; the integuments dry, the cuticle scaly. On the right side of the neck was situated a round flattened tumour, the size of a bean. On the right mammary region a lobulated, clearly fluctuating tumour was remarked, which extended from the second to the fifth rib in one direction, and from the junction of the ribs with the cartilages, to the right axilla in the other; the integuments covering the tumour presented nothing abnormal. Under the skin, the tumour was covered by the greater and lesser pectoral muscles, which were feebly developed, and it was slightly adherent with the latter. After the removal of the muscles, the slightly laced membranous outer surface of an encysted tumour appears. After opening this thin-walled outer layer of the tumour, a cavity is reached, in which is enclosed an albuminous thin white cyst, which has for its contents a pus-like yellowish-white mass, and cysts of various sizes. This pus-like mass consists of fat, cholestrine crystals, pus-corpuscles, mostly in a state of fatty metamorphosis, pigment, and numerous separate elementary particles. The cysts are from the size of a pea to that of a hen-egg, with thin walls, partly transparent, and partly slightly opaque. On the inner surface of some of these cysts were closely packed granulations, which for the most part were fatty and cretaceous, but many of them were recognised as degenerated hook-crowns. The *echinococcus cysts* contained, therefore, no brood, that is, they were *acephalocysts*.

After emptying the contents, it is seen immediately that the tumour is continued as far as the right cavity of the chest. The third rib in two places in the neighbourhood of the cartilage, is very thin and much broken, with rough surfaces. The second and fourth ribs are, for $1\frac{1}{2}$ inch from the junction of the cartilage, rough, as if gnawed. The intercostal muscle between the third and fourth ribs, which are an inch separated from one another, is absent for a space 2 inches in diameter; and through this remarkable chasm the extra-thoracic tumour communicates with an intra-thoracic one. The extra-thoracic tumour extends from the under border of the second rib to the upper border of the fifth; its inner border is bounded at the second rib by the articulation of the rib with the cartilage; by the third rib, at 1 inch; by the fourth, at $1\frac{1}{2}$ inch; and by the fifth, at $2\frac{3}{4}$ inches, distant from the corresponding articulations of the ribs with their cartilages. The outer border is bounded by a line extending from the corresponding inner border, obliquely downwards and outwards. The long diameter of the extra-thoracic tumour measured 3 inches, the cross diameter, $2\frac{3}{4}$ inches, and it projected $1\frac{1}{2}$ inch from the surface of the chest. Immediately

on the outer border of the basis of this tumour there are found three small tumours of the size of a hazle-nut, filled with acephalocyst sacs and communicating with the external tumour.

The part of the tumour situated within the right cavity of the chest, has a thick, firm, cartilaginous, inflexible capsule, which is covered with the pleura costalis, and is firmly adherent with the upper lobe of the lung, and at the basis is slightly constricted. Near this constriction, at the upper and under borders of the tumour, there are under the pleura costalis several confluent acephalocyst growths, of the size of a hazel-nut, which communicate with the neighbouring large tumours through fine openings. The large tumour is semicircularly constricted from above downwards, and extends itself more in breadth, parallel to the ribs, than in length. The intra-thoracic tumour extends from the upper border of the third to the under border of the fourth rib, measures 5 inches in breadth, and $2\frac{3}{4}$ in length, and projects $1\frac{3}{4}$ into the cavity of the chest. The inner surface of the intra and extra-thoracic tumours is rough, in some spots fan-like; and presents, corresponding to the external semicircular constriction, a ridge-like projection, whereby the tumour appears to be divided into two unequal parts. The entire tumour is about the size of a child's head. The inner tumour extends itself more in breadth, the outer more in length. The surface of the outer tumour is unevenly lobulated; that of the inner is more smooth; only at one place it is slightly laced, otherwise it is a uniformly oval body. The capsule of the outer tumour is thin, fibrous, membranous—that of the inner is stiff and leather-like. Notwithstanding these formal differences, both tumours are in all essential elements one and the same tumour, which had developed itself gradually under different influences.

The germ-bed and cradle of this tumour was the intercostal muscle, between the third and fourth rib. In this muscle the worm-germ (echinococcus hominis) was first situated, and from this the development of the echinococcus growth increased in circumference. In the muscles of the trunk and extremities, as also in the intestinal canal, no parasites could be found. That during the development of this tumour various pathological processes, especially inflammation of the capsule and of the lining membrane, had occurred, is evident from the foregoing report. The fatty degeneration and internal purulent metamorphosis, the cartilaginous growth of the internal capsule, and the degenerated echinococcus brood, are true witnesses, and time-worn memorials of the active processes whose presence had been indicated, by affecting important organs, the lungs, and by the oppressed breathing.

This tumour, which, on account of its position, extent, and contents, was not without interest, merited also in a diagnostic point of view some attention. In the region where the tumour was seated, aneurism of the ascending aorta not unfrequently occurs; and as, in consequence of its adhesion to the lung, and of the close neighbourhood of the aorta, respiratory and pulsating movement might have

been communicated to it, the symptoms might have been interpreted as belonging to an aneurism. So great was its resemblance to a lipoma, that surgeons of undoubted skill had even recommended an operation for its removal.

II. J. B., artillerist, twenty-three years old, born in Hungary, was brought into hospital, dying, from pneumonia apparently. The examination of the body, made in March, 1860, gave the following result, which I will communicate briefly:—The corpse middle-sized, well developed; the complexion yellowish-white; neck short; thorax broad, and uniformly arched; the abdomen soft; the cranium symmetrically oval, thin; the inner coverings of the brain, moist with serum; the substance of the brain, hard, moist; the diaphragm was, on the left side at the height of the fifth, on the right at the height of the fourth rib, at both sides fluctuating, and on the left side convex towards the abdomen; the thyroid gland, small and granular; the mucous membrane of the air-passages, slightly injected; the left lung grown to fibrous tissue, except the apex, which was attached to the walls of the chest by a thin strong adhesion; the superior lobe was slightly collapsed, splenified, saturated with a fine frothy bloody mucous fluid. *Between the inner part of this lobe and the pleura, and especially from the apex to the base of the superior lobe, an oval thick-skinned sac was visible, the outer surface of which was strongly adherent to the lung and pleura, the inner surface was loosely adherent with another sac—namely, in the first described sac a second was enclosed, the walls of which appeared to be a thin, white, easily torn, albuminous membrane—enclosed in this inner sac were a thin viscous fluid and seperate thin cysts. It appears, then, this cyst is also an acephalocyst growth.* In the inferior lobes, bronchial catarrh: chronic catarrh, and emphysema of the right lung; adhesion of the right pleura through œdematous false membranes; the heart, together with the anterior mediastinum, was pushed towards the right, so that the left side of the heart corresponded to the right side of the sternum; the heart was enlarged, namely, hypertrophy of the left ventricle, and dilatation of the right ventricle and auricle; there was also remarkable contraction of the aorta, particularly of the arch and its large branches, with consecutive enlargement of the sinuses of Valsalva and of the heart. Great contraction of the pulmonary artery; the descending aorta was generally narrow, yet in proportion to the ascending part it was large; the subclavian artery was of about the diameter of the thyroid, the carotids were somewhat larger; the arteries of the upper extremities were small, the large venous trunks not altered; the liver was pushed somewhat downwards, and filled with blood; the spleen was enlarged, bloody; bloody congestion of the kidneys; urine scanty, muddy, yellow; in the stomach and intestinal canal there was nothing abnormal.

III. Anna K., servant-maid, thirty-four years old; born in Moravia, of healthy parents; menstruated in her twentieth year for the first time, and till her first illness, a typhus, in her twenty-third year (from which, however, she recovered perfectly) always nor-

mally, since that irregularly. In summer, 1857, she became ill, with feverish symptoms, dyspnœa, stitches in the right side of the thorax, and cough, with mucous expectoration. The fever and stitches continued twelve days; after the expiration of this time she recovered perfectly, and after four weeks returned to her former employment; but, after violent bodily exertions, she would suffer from difficult breathing. In the year 1859, she became pregnant; her pregnancy and labour were normal; her recovery after her confinement was interrupted by an attack of partial peritonitis, which obliged her to remain in the hospital for four weeks. At the middle of September, she returned to her employment; but on the 14th October, 1859, again became ill, with symptoms of fever, pain in the right side of the chest, dyspnœa, and teasing cough, for which after six days she was readmitted into hospital.

When admitted, she appeared middle-sized, small-boned, the muscles badly developed, the subcutaneous cellular tissue poor, the integuments pale, dry, hot; the right side of the chest remarkably longer and narrower than the left; the respiration quickened, during which the left intercostal spaces were plainly contracted, and by forced respiration this side of the chest was more raised; the percussion sound on the left side anteriorly, from the clavicle to the fourth rib was clear, from this to the sixth dull, and from that downwards tympanitically clear; the heart's dulness reached to near the left nipple. On the right side, anteriorly, the sound from beneath the clavicle to the third rib was clear and tympanitic, then it became dull, and passed at the fourth rib into a perfectly dull sound; the same description applies to the axilla. On this side the dull sound, beginning in the region of the nipple, extended from the angle of the ribs downwards as far as the anterior superior spinous process of the ilium; in the median line, as far as half an inch above the navel.

Percussion of the back yielded on the left side, from above downwards, the normal clear sound; on the right, in the upper parts it was somewhat dull, became then at the height of the third dorsal vertebra perfectly dull, and continued so downwards. Auscultation gave, on the left side, rough vesicular breathing; on the right, above, as far as the third dorsal vertebra, indefinite inspiration, with corresponding expiration sounds; from this downwards, the respiration sounds became weaker, and at the fifth dorsal vertebra disappeared entirely. The heart's impulse was clearly perceptible under the nipple, between the fifth and sixth ribs; the sounds of the heart and large vessels normal; the arteries small, pulsation 120; the abdomen sunken yet on the right it was somewhat more arched; palpation detected, corresponding to the dull percussion sound in the line of the nipple and in the median line, the deep-seated curved border of the liver; the spleen normal; the secretion of urine scanty; bowels confined; the patient felt herself weak, complained of stinging pains on the right side, showed little appetite, and had great thirst. The diagnosis was relapsed pleuritis of the right side.

She was ordered an infusion of digitalis, which was stopped after four days, on account of the diminution of the pulse. From this time her appetite returned, and the pulse became perfectly normal; and a suitable diet, and the use of seltzer-water, were ordered. After eight days' use of this, a copious diuresis occurred; in twenty-four hours there were 2500–3000 cubic centimetres of urine passed. From this forth her appearance improved, her strength returned, and the difficulty of breathing disappeared. Notwithstanding the continuance of the improvement in her appearance and strength, shooting pains in the right side of the chest, extending from the spinal column, occurred in the course of the month of December; and some weeks afterwards, a curvature of the spine towards the left side was observed. For these pains a warm bath was ordered, which gave great relief; and the patient, who felt perfectly recovered, was discharged from hospital, after a treatment of four months, on 16th February, 1861.

At her discharge, the percussion sounds of the chest were exactly the same as last described; and the liver was low down in the abdomen, as at her admission. Of the subjective symptoms, the oppressed breathing and the shooting pains remained. Eight days after leaving the hospital, she was attacked with repeated shiverings, followed by heats; her strength diminished, and her appetite failed, and finally the fever symptoms became continuous. She was now again obliged to seek admission. On the 26th March, 1861, she was readmitted; and at the examination on her entrance, this patient, who on leaving the hospital was tolerably strong, was found in the greatest degree depressed, weak, appetiteless, feverish; the percussion and auscultation symptoms were the same as when she left, with the exception that at the back, on the right side, the perfectly dull sound extended up as high as the second dorsal vertebra. Along with the fever, and the extreme degree of marasmus, there was pain in the seventh and eighth intercostal spaces. On examination of these spaces in the line of the axilla, there was found evident fluctuation, without redness or heat of the integuments. The pain and fluctuation disappeared after some weeks. Under the continuance of the fever, she emaciated more and more, œdema of the ankles set in; and she died on the 10th June, 1861.

At the post-mortem examination, it appeared that the body was middle-sized; meagre; the skin generally white; the thorax long, uniformly flat; the abdomen slightly distended; the cranium compact; the arachnoid opaque, and the ventricles somewhat distended; the thyroid gland, large and hard. The mucous membrane of the larynx and trachea was slightly injected. The diaphragm stood on the right side at the upper border of the eighth rib, on the left at the upper border of the sixth, fluctuated on both sides, especially the right, and at this side was convex downwards; in the left pleural cavity there was about a pound of clear yellow serum formed; the left lung was free, but inflamed; the right lung was everywhere confined by short fibrous adhesions; the upper lobe was

slightly condensed, infiltrated, and œdematous; the middle and lower lobes were compressed by false membrane, and dragged forwards; their tissue atrophied. *Between the posterior surface of the lung and the pleura, there extended itself from the upper border of the middle lobe to the base of the lung (from the second to the eighth rib), an oval, thick-walled, fibrous sac, which enclosed a second thin-walled, white, albuminous, friable sac, which contained an opaque, whitish, glutinous fluid; on the inner surface of this second cyst, there were remarked, here and there, yellowish white dotted patches: these were recognised as fat, chalk-masses, and degenerated hook-crowns.* Between the sac and the atrophied lung with which it was adherent, the pleura was plainly seen. The heart was pushed to the left side, and the liver downwards; there was bloody congestion of the liver, spleen, and kidneys, and ascites.

The two last cases of acephalocyst sac growths in the lungs, extending to such a size, are, relative to differential diagnosis, not without worth; since a confounding of them with an encysted pleural effusion could easily take place. Although an acephalocyst sac of such size can never be diagnosed with precision during life, yet it is not unimportant to bear these cases in mind, that we may not be embarrassed in those cases where such a sac comes into contact with a bronchus, and its contents become evacuated through the bronchi, or when the contents pass into the cavity of the pleura, and produce a pneumo-thorax, or even make their way through the walls of the thorax, and are emptied externally; or, finally, through paracentesis, performed for a supposed chronic pleuritic exudation, are emptied artificially.

In like manner as the two cases now described had originally developed themselves under the pleura, and from thence, through the removal of the lung, had increased in size, so it appears to me that in the majority of cases where the occurrence of echinococcus cysts, and especially acephalocyst sacs, is mentioned in the lungs, it is not in the lung-substance they have their origin, but under the pleura costalis; and therefore in the intercostal muscles, or in the diaphragm, that they have their germ-bed. Whoever takes the trouble to prepare acephalocyst sacs of the lungs, may exhibit the boundary between the pleura and the proper cyst with precision, and may separate the remains of the wasted lung from the cyst. I do not deny that acephalocyst sacs ever occur in the substance of the lungs; I only assert that in very many cases echinococcus growths, and their respective acephalocyst sacs, at first develop themselves under the pleura costalis and diaphragmatica, and have their primary development in the intercostal muscles and diaphragm.—*Wochenblatt der Zeitschrift der k. k. Gesellschaft der Aerzte in Wien*, No. 25–26.

Researches on Lead Poisoning. By Dr. A. GUSSEROW.

It is not alone the importance of the lead disease, nor yet the variety in its symptoms, that excites scientific interest; but the peculiar circumstance, that, whereas the cause and the result are both so manifest, the middle term, namely, the comprehension of the process itself, is completely absent. Tanquerel, of Planches[a], concludes his endeavours to explain the lead disease with these words:—"In vain we try to raise the veil which shuts from our view the process of heterogeneous combinations, and thus learn the secret of their nature: we can only perceive the effects."

At an early period the conjecture was received, that the lead was deposited in the organs, and so caused the various disturbances of function. It is true that lead has been found in almost every portion of the animal organism. Without permitting myself to enter on a critique upon these statements, this much is at any rate certain, they are ambiguous in the highest degree, frequently quite contradictory, and the means employed to obtain the results most uncertain; and thus, the numerous researches allow of no exact conclusions. How far the results of my analyses permit of these, I must postpone for the present; their absence I by no means wish to conceal; and can only apologize for the fragmentary form of this communication, other engagements having hindered a further prosecution of these researches.

It was necessary, in the first place, to make use of a process by which not only the presence of the smallest quantity of lead could be discovered, but that it should be obtained in the metallic form. Electrolysis appeared to me to present the greatest advantages for these ends. It is true, scientific researches are wanting, as to the degree of exactness of this process for separating metals from organic fluids; the works of Kletzinsky[b], Reder and Schau, Schanenfels[c], Waller, and recently Overback[d], however, have sufficiently pointed out its very great certainty. I employ electrolysis as given by Bloxam[e], for the detection of arsenic. As the value of results is in proportion to the correctness of the process by which they are obtained, I will here give a short description of it.

The organic substances having been destroyed with muriatic acid and chlorate of potash, the filtrate is introduced into a large bottle, the bottom of which is covered with a tightly stretched membrane of vegetable parchment. The bottle is closed with a cork, through which a platina-wire is passed, carrying a plate of the same metal, so that the latter is held close over the membrane. This apparatus is placed in a basin of water, acidified with SO_3: the fluids should stand equally high in both vessels.

[a] Bleckrankheiten, Bd. ü., Sei. 141.
[b] Wiener Wochenschrift. 1857. No. 45.
[c] Ibid. 1858. No. 44. [d] Mercur n. Syphilis. 1861.
[e] On the Detection of Poisonous Metals by Electrolysis. Quarterly Journal of Chemical Society, No. 49: London, April, 1860.

A battery, consisting of four of Grove's elements, is connected with this apparatus in such a manner that the platina-wire, in the fluid to be examined, is in connexion with the negative electrode, the positive electrode, consisting of a platina-wire and plate similar to the other, is placed in the acidified water, so that the two plates may be separated from each other by the parchment only. The time during which it is necessary to keep the chain closed varies with the quantity of fluid to be examined; it never was under eight hours, and only in a few cases over fifteen. The lead is thrown down on the negative electrode, in the form of a dark grey to a black coating, according to the quantity. In order to be certain that all the lead is removed from the fluid, it is only necessary to change the plate so long as any coating presents itself. To recognise this as lead, it is sufficient to dissolve it in NO_5 evaporate to dryness, and pour over the residuum water impregnated with sulphuretted hydrogen, and, having separated the black precipitate by filtration, examine it in the reducing flame of the blowpipe: the lead is thus obtained in the form of a metallic globule or scale. With regard to the quantitative analysis, I have weighed the deposit directly after careful washing and drying, along with the plate; and after removal of the coating, ignited and reweighed the latter. It is easy to understand that this method is uncertain; I have, therefore, estimated the lead according to the method of Fresenius as PbO, SO_3, and then calculated the metallic lead present. It is scarcely necessary to add, that from the minute quantities of lead dealt with in these analyses, the reagents should be perfectly pure. The principal reagents employed, namely, the KO, ClO_5, and ClH, and the SO_3 were tested by Professor Hoppe for some legal examinations. In the filtering paper of the laboratory there was not found a trace of lead in six quires, contrary to the statement of Wicke[a], that he found in every quire of the ordinary filtering paper 0·159 per cent. of lead.

It is necessary to clear up one point more, before I proceed to the analyses. It is well known that for a long time the question has been in dispute, whether copper and lead are normal constituents of the animal organism: since Devergie and Henry endeavoured to demonstrate copper and lead in all the organs, the most opposite statements have been published, sometimes for, sometimes against this assertion, by numerous chemists, more especially French. Lead is placed by them in a second series; and it is asserted that its presence is much more rare, and less distinct. That copper may be present in the healthy organism, can be no longer doubted; not, however, as a constant constituent, but dependent on the food, as shown by the analyses of Bechamps[b]. In this Meissner[c] demonstrated copper in abundance; and recently, Odling and Duprè[d], more par-

[a] Annal. d. Chemie u. Pharm., Bd. cxii.
[b] Le Montpell. Méd. Oct., 1859. Journal de Physiolog. iii., Jan., 1860.
[c] Schweiger's Journal, xvii., 1861.
[d] Guy's Hospital Reports, 3, ser. iv., 1858.

ticularly in bread, meal, corn, and turnips, &c. Such observations are completely absent in regard of lead, as it is chiefly found as an adulteration in articles of food injurious in themselves. It is, however, possible to imagine relations similar to copper, since Schwarzenbach[a] has lately found lead in the liver of an individual who had never taken lead as a medicine; and, moreover, Taylor[b] has observed that plants grown in a soil with lead contain lead. In order to make certain that there should be no error in this respect, I examined, by the method described above, the muscles and liver of a rabbit which had lived under the same relative circumstances as the animals for the following experiments had, and found no trace of either copper or lead.

With regard to the preparations for these experiments, I employed the PbO, SO_3 on account of its slight solubility in water, thus to insure a slow absorption: further, I gave the animals only small daily doses, in order to produce as chronic a state of intoxication as possible, as the worthlessness of a great number of experiments resulted from the ease with which, almost instantaneously, poisonous doses could be given where the soluble salts were employed. Four strong rabbits, well fed together, received four grammes Pb, OSO_3 daily, commencing November 16, 1860.

No. I. died on the 5th December, the twentieth day: for a long time before death it had visibly wasted, and trembling in the limbs set in without symptoms of paralysis. There was nothing abnormal on dissection, with the exception of great wasting and paleness of the muscles, and the absence of all collections of fat.

In the urine taken from the bladders of the dead animal, no lead[c].

In the brain and spinal marrow, no lead.

In the muscles (of the abdomen, back, and extremities,) there was a small but distinct scale of lead after the use of the blowpipe.

Liver, metallic lead obtained, no copper.

Bones (pelvis and four extremities) the lead was quantitatively estimated=0·0051 grammes Pb.

No. II. died on the 8th December, the twenty-third day, reported to have died with cramp-like symptoms.

Brain and spinal marrow, traces of lead.

Muscles—the electrolytic deposit weighed 0·01 grammes; with the exception of lead, no metal could be discovered.

Liver, numerous small scales of lead under the blowpipe.

Bones contained 0·0037 grammes Pb.

No. III. died, as II. on the twenty-third day.

Brain and spinal marrow, no lead.

Muscles, much metallic lead before the blowpipe.

[a] Verhandl. d. Physikal. Gesellschaft zu Würzburg, vii., 1856.

[b] On Poisons, in Relation to Medical Jurisprudence: London, 1859.

[c] In every case in which the quantitative estimation was not made, the electrolytic coating was treated in the manner above described, and examined under the blowpipe.

Liver, a distinct but small quantity of metallic lead; the coating on the plate was very thick, but it contained copper as well.

Bones contained much lead.

Urine from II. and III. together, no lead.

Kidneys from II. and III. together, much lead.

No. IV. was killed on the twenty-fifth day by opening the carotid: for the last few days it had distinct trembling and staggering in its gait.

From 31·5 grammes of blood, only a very small amount of lead was obtained.

Muscles—the electrolytic deposit weighed 0·2 grammes; before the blowpipe, so much metallic lead was obtained, that fine spangles of it could be taken up with a forceps.

Brain and spinal cord, no lead.

Liver, not much metallic lead.

Bones, lead tolerably abundant.

Stomach and intestines, macerated for a long time and well washed, gave proportionably such a remarkable quantity of lead, that the suspicion was raised that it was impossible to remove all the lead mechanically fastened between the villæ.

No. V., a middle-sized healthy dog was given two grammes of PbO, SO_3 daily. On about the twelfth day he lost his appetite, became inert, appeared to drag his hind legs after him, and never raised himself on them, as he had formerly been in the habit of doing. These symptoms, from the twentieth day, instead of increasing, seemed to diminish. The dog was killed by opening the carotid, on the twenty-seventh day. The dissection showed nothing particular. Should the results in this case appear less than those obtained from the rabbits, the explanation is easy; the poisoning had not advanced as far in the dog as in the first four cases.

The urine taken two days before death contained, in 1602 grammes, 0·0027 grammes lead.

The blood, imponderable traces in 379 grammes.

Brain and spinal cord, no lead.

Liver contained, in 246 grammes, 0·0060 grammes lead.

Gall, in 5·93, no trace of lead.

Spleen, no lead.

Muscles, in 751·5 grammes, 0·0051 lead.

Bones—a quantity of 146 grammes gave a very thick deposit; the quantitative estimation was prevented by an accident.

It would certainly be of great interest to examine the various preparations of lead in this manner, as to their distribution in the organism, which might perhaps be different. Unfortunately, I could only carry out this trial on two rabbits with $2PbO, PO_5$: the results do not differ materially from those obtained with the PbO, SO_3.

No. VI. received daily $2PbO, PO_5$, one gramme, and died on the nineteenth day, with marked weakness of the posterior extremities, distinct paralysis, however, of distinct groups of muscles was not distinguishable.

Muscles, in 84 grammes, 0·0091 grammes lead.
Brain and spinal cord, no lead.
Liver, a distinct quantity.
Urine, in 41·14 grammes, no lead.
Bones, 25 grammes contained 0·0080 grammes lead.

No. VII. was killed, having lived under the same circumstances, on the nineteenth day.

Urine, in 6·29 grammes, no lead.
Muscles, in 310 grammes, 0·0061 grammes lead.
Brain, no lead; spinal cord, traces.
Bones of the four extremities gave 0·0037 grammes lead.

The number of these experiments being so limited, their results must be in the same proportion, and only a few conclusions can be deduced from them.

While in all the literature to which I had access the presence of lead in the muscles is only once mentioned, namely, that Devergie had found it "in the blood, kidneys, lungs, gall, bladder, intestines, brain, and muscles of a person who died of encephalopathia saturnina,"* the constancy and preponderance of the appearance of lead in the muscles in the above analysis must cause astonishment. These positive results acquire a still higher meaning from the negative in relation to the central portions of the nervous system, in which the lead scarcely ever was found, or only in traces. From this it follows, of necessity, that the lead disease is caused by the affection of the muscular structure, that is, that the muscles have lost the power to contract when called upon to do so by the motor nerves. Our knowledge of how the lead is distributed, and in what combinations it presents itself, is as limited as our knowledge of the process by which the structures undergo change. The peculiar fact was observed by Duchenne, that muscles paralysed by lead, when exposed to the electric current, very soon lose their electro-muscular contractility, while they are still moveable by a strong impulse of the will. Also Tanquerel, in his analysis of the appearances in the lead paralysis, states that there are no phenomena on this side of the cerebro-spinal centres pointing to these as the starting-point of its division; and it has happened to him more than once, to find muscles paralysed whose nerves also supplied muscles which were not affected. When he came to the conclusion, however, after these observations, that the spinal marrow is the seat of the disease, because muscular fibre is only contractile through nervous influence, he must have forgotten, apart from the correctness of these statements, that an obstacle to nervous action may be formed on the side of the muscles. It must be reserved for further researches, whether the peculiar affection of certain muscles arises from the lead predominating in them. In the above instructive cases, I never observed a marked paralysis of the extensors before other groups of muscles. I frankly acknowledge that the localization of the lead in the muscles, by

* Tanquerel, Bd. ii.

election, is only a step towards the knowledge of lead paralysis: how this localization takes place, and what the changes thereby made in the muscles, still require explanation. Since we have found the nerve-substance comparatively free from lead, the explanation of the two forms of lead disease, namely, the encepholopathia saturnina and the lead colic, is rendered more difficult.

The doubtful supposition of Briquet[a], that the seat of pain in lead colic is in the intestinal muscles, helps but little to the explanation. From the doubtful case mentioned above, No. IV. of lead in the intestinal walls, a conclusion might at least be ventured on the elective affection of the flat muscles, until closer researches be made in this direction[b].

The cases of encephalopathia saturnina, in which lead has been found in the brain are very isolated, and require a very clear analysis: it is possible that certain preparations of lead have a peculiar influence in this region.

So little are we in a position to follow the course of the lead in the change of tissue, the presence of it in the blood must suffice to prove that it is by its means distributed through the body.

In the rapid changes to which the constituents of the blood are subjected, a greater increase of lead could not be expected than was found in the cases No. IV. and V.

From an early period it was received that the lead was excreted from the organism by means of the gall and the urine. The former seems to take place, from the experiments before us; at least, they show a great increase of lead in the liver. The one case in which the gall was examined, and no lead was found, proves nothing, as a single case is of little value, and the quantity of gall examined was very small, only five grammes. We may be more certain of the elimination by the kidneys, stated by all parties, and confirmed by our own results. The large quantity of lead found in these organs, and its presence in the urine of No. V., favour this opinion. The gradual manner in which this elimination must take place, shows how impossible it would be to demonstrate it in the small quantity of rabbit's urine. In this relation the statements of various physicians and chemists are to be received with caution, that, by the use of iodide of potassium in lead colic, the lead appears in great quantities in the urine; particularly when the method for its detection is so convenient as that of Gueneau de Mussy, who will have that he demonstrated the presence of lead in the urine in the

[a] Archiv. Génér., Feb., März., 1858.

[b] When Henle (rationelle Pathologie) pointed out the peculiar quality of the pulse in lead colic, and explained it by the contraction of the flat muscular fibres in the walls of the vessels, so also the very interesting work by Constantin Paul, in passing deserves notice (Considerations sur certains Maladies Saturnines. Paris: Febr., 1861). Paul shows, from very extensive researches, that women who have acquired lead colic by polishing type, during and for a long time after the attack suffer from uterine hemorrhage, and nearly every pregnancy ends either in abortion or in premature birth.

well known case of lead poisoning in the family of Louis Philippe, when he simply added sulphide of ammonium.

In conclusion, I must mention one of the results in the cases before us, which I have not found anywhere described, and naturally contributes nothing to the comprehension of the lead disease; I allude to the constant and well-marked presence of lead in the bones. This appearance acquires a certain interest, when we remember that lime frequently takes the place of lead in minerals. As to the carbonate of the oxide of lead, I may mention the plumbocalcites, which consist of 92,2 CaO, CO_2, and 7, 8. PbO, CO_2 and crystallize exactly like calc-spar. Arragonite[a] (Naumann Mineralogie) has also its representative, containing lead, in Tarnowitzite[b], which contains 3·86 per cent PbO, CO_2, but is otherwise exactly similar to arragonite. With regard to the 3 PbO, PO_5, I take the researches of Sainte Claire Deville, and Caron[c] on the artificial formation of minerals including chlorine and fluorine with metals. These investigations have produced artificial minerals, with the formula of apatite = 3 (3 CaO, PO_5) + Ca Cl, and of pyromorphite = 3 (3PbOPO) + Pb Cl,)[d] which crystallized exactly as apatite, and in which an atom of lime could be displaced by an atom of lead, at pleasure. If no distinct proof is furnished that in the bones so much lime is displaced by so much lead, this much is at least certain, that the lead is distributed throughout the organism principally where the lime is distributed; and the conclusion is certainly allowable that the lead is transformed in the change of tissue in a similar manner to lime—how ? We know as little about the one, as the other.

In conclusion, I fulfil a pleasing duty, when I express my most hearty thanks to Professor Hoppe, for the friendship with which he has afforded me his assistance in these researches, during their prosecution in the laboratory of the Pathological Institute.—*Virchow's Archiv*, Vol. XXI.

[a] Compte rend xlvii., and Liebig u. Wöhler, Annalen cix., s. 242.

[b] Dana, System. of Min., vol. ii., p. 438. Plumbo-calcite = 97·61 carbonate of lime, 2·34 carbonate of lead, and 0·05 of water.

[c] Dana, p. 449. Tarnowitzite = CaO, CO_2 95·94 + PbO, CO_2 3·85 + HO, 0·157.

[d] Ibid, p. 400.

EDITORIAL.

The pressure of other professional engagements having compelled me to resign the editorship of the Dublin Quarterly Journal of Medical Science, I feel great confidence in intrusting its management to my successor, Dr. George H. Kidd, who will, I know, devote energy and ability of a high order to maintain the position in medical literature which it has held in my time, and in that of my predecessor, Dr. Wilde. I cannot, however, lay down my pen, after twelve years' service, without offering my warmest acknowledgments to the Profession for the kindness and indulgence with which my editorial labours have been received, and especially to those of my brethren who, by their writings, have enabled me to make this Periodical be regarded, both at home and abroad, as the exponent of Irish Medical Science.

J. Moore Neligan.

Dublin, *November* 1, 1861.

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